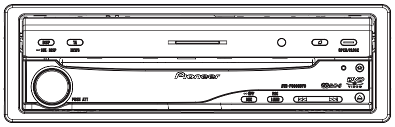
Pioneer sound.vision.soul

Service Manual


AVH-P5900DVD/XN/UC

ORDER NO.
CRT3915

DVD AV RECEIVER
AVH-P5900DVD/XN/UC
DVD RDS AV RECEIVER
AVH-P5900DVD/XNEW5
AVH-P5900DVD/XN/RE

This service manual should be used together with the following manual(s):

Model No.	Order No.	Mech.Module	Remarks
CX-3212	CRT3896	MS5	DVD Mech. Module : Circuit Descriptions, Mech. Descriptions, Disassembly

"DTS" and "DTS Digital Surround" are registered trademarks of Digital Theater Systems,Inc.

Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.

"Dolby" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.

For details, refer to "Important Check Points for Good Servicing".

PIONEER CORPORATION 4-1, Meguro 1-chome, Meguro-ku, Tokyo 153-8654, Japan
PIONEER ELECTRONICS (USA) INC. P.O. Box 1760, Long Beach, CA 90801-1760, U.S.A.
PIONEER EUROPE NV Haven 1087, Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE. LTD. 253 Alexandra Road, #04-01, Singapore 159936
©**PIONEER CORPORATION 2007**

K-ZZU. MAY 2007 Printed in Japan

SAFETY INFORMATION

CAUTION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer.
Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual.
Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty.
If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.
Health & Safety Code Section 25249.6 - Proposition 65

This product contains mercury. Disposal of this material may be regulated due to environmental considerations. For disposal or recycling information, please contact your local authorities or the Electronics Industries Alliance: www.eiae.org.

The backlighting lamp of LCD in this equipment contains mercury. Disposal of this material may be regulated due to environmental considerations according to Local, State or Federal Laws. For disposal or recycling information, please contact your local authorities or the Electronics Industries Alliance: www.eiae.org

1. Safety Precautions for those who Service this Unit.

- **Follow the adjustment steps in the service manual when servicing this unit. When checking or adjusting the emitting power of the laser diode exercise caution in order to get safe, reliable results.**

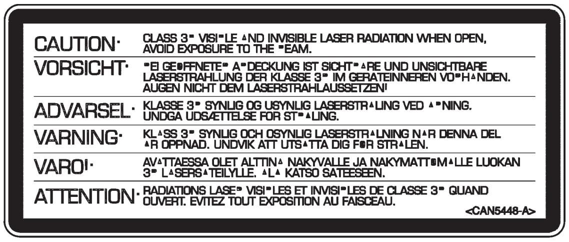
Caution:

1. **During repair or tests, minimum distance of 13 cm from the focus lens must be kept.**
2. **During repair or tests, do not view laser beam for 10 seconds or longer.**

2. The triangular label is attached to the mechanism unit frame.

CAUTION
This product contains a laser diode of higher class than 1. To ensure continued safety, do not remove any covers or attempt to gain access to the inside of the product.
Refer all servicing to qualified personnel.
The following caution label appears on your unit.

On the top of the player.



CAUTION: CLASS 3B VISIBLE AND INVISIBLE LASER RADIATION WHEN OPEN, AVOID EXPOSURE TO THE BEAM.

VORSICHT: BEI GEÖFFNETER ABDECKUNG IST SICHTBARE UND UNSICHTBARE LASERSTRAHLUNG DER KLASSE 3B IM GERATEINNEREN VORHANDEN. AUGEN NICHT DEM LASERSTRAHLAUSSETZEN!

ADVARSEL: KLASSE 3B SYNLIG OG USYNLIG LASERSTRÅLING VED ÅBNING. UNDGA UDSÆTTELSE FOR STRÅLING.

VARNING: KLASS 3B SYNLIG OCH OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR OPPNAD. UNDVIK ATT UTSÄTTA DIG FÖR STRÅLEN.

VARO!: AVATTAESSA OLET ALTTIINA NAKYVALLE JA NAKYMATTÖMÄLLE LUOKAN 3B LASERSÄTEILYLLE. ÄLÄ KATSO SATEESEEN.

ATTENTION: RADIATIONS LASER VISIBLES ET INVISIBLES DE CLASSE 3B QUAND OUVERT. EVITEZ TOUT EXPOSITION AU FAISCEAU.

<CAN5448-A>

WARNING!

The AEL (accessible emission level)of the laser power output is less than CLASS 1 but the laser component is capable of emitting radiation exceeding the limit for CLASS 1.
A specially instructed person should do servicing operation of the apparatus.

Laser diode characteristics

Wave length:
DVD:640 nm to 660 nm
CD:770 nm to 810 nm
DVD : 2.48 mW(Emitting period :9 sec.)
CD : 705 μW(Emitting period : unlimited)

Additional Laser Caution

Transistors Q1101 and Q1102 in PCB drive the laser diodes for DVD and CD respectively. When Q1101 or Q1102 is shorted between their terminals, the laser diodes for DVD or CD will radiate beam. If the top cover is removed with no disc loaded while such short-circuit is continued, the naked eyes may be exposed to the laser beam.

CAUTION

Danger of explosion if battery is incorrectly replaced.
Replaced only with the same or equivalent type recommended by the manufacture.
Discord used batteries according to the manufacture's instructions.

[Important Check Points for Good Servicing]

In this manual, procedures that must be performed during repairs are marked with the below symbol.
Please be sure to confirm and follow these procedures.

1. Product safety

Please conform to product regulations (such as safety and radiation regulations), and maintain a safe servicing environment by following the safety instructions described in this manual.

① Use specified parts for repair.

Use genuine parts. Be sure to use important parts for safety.

② Do not perform modifications without proper instructions.

Please follow the specified safety methods when modification(addition/change of parts) is required due to interferences such as radio/TV interference and foreign noise.

③ Make sure the soldering of repaired locations is properly performed.

When you solder while repairing, please be sure that there are no cold solder and other debris.
Soldering should be finished with the proper quantity. (Refer to the example)

④ Make sure the screws are tightly fastened.

Please be sure that all screws are fastened, and that there are no loose screws.

⑤ Make sure each connectors are correctly inserted.

Please be sure that all connectors are inserted, and that there are no imperfect insertion.

⑥ Make sure the wiring cables are set to their original state.

Please replace the wiring and cables to the original state after repairs.
In addition, be sure that there are no pinched wires, etc.

⑦ Make sure screws and soldering scraps do not remain inside the product.

Please check that neither solder debris nor screws remain inside the product.

⑧ There should be no semi-broken wires, scratches, melting, etc. on the coating of the power cord.

Damaged power cords may lead to fire accidents, so please be sure that there are no damages.
If you find a damaged power cord, please exchange it with a suitable one.

⑨ There should be no spark traces or similar marks on the power plug.

When spark traces or similar marks are found on the power supply plug, please check the connection and advise on secure connections and suitable usage. Please exchange the power cord if necessary.

⑩ Safe environment should be secured during servicing.

When you perform repairs, please pay attention to static electricity, furniture, household articles, etc. in order to prevent injuries.
Please pay attention to your surroundings and repair safely.

2. Adjustments

To keep the original performance of the products, optimum adjustments and confirmation of characteristics within specification.
Adjustments should be performed in accordance with the procedures/instructions described in this manual.

3. Lubricants, Glues, and Replacement parts

Use grease and adhesives that are equal to the specified substance.
Make sure the proper amount is applied.

4. Cleaning

For parts that require cleaning, such as optical pickups, tape deck heads, lenses and mirrors used in projection monitors, proper cleaning should be performed to restore their performances.

5. Shipping mode and Shipping screws

To protect products from damages or failures during transit, the shipping mode should be set or the shipping screws should be installed before shipment. Please be sure to follow this method especially if it is specified in this manual.

CONTENTS

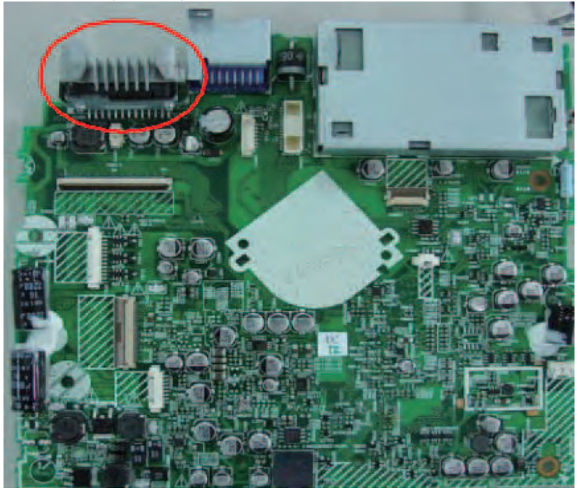
SAFETY INFORMATION 2
1. SERVICE PRECAUTIONS 6
2. SPECIFICATIONS 8
  2.1 SPECIFICATIONS 8
  2.2 DISC/CONTENT FORMAT 11
  2.3 PANEL FACILITIES 12
  2.4 CONNECTION DIAGRAM 14
3. BASIC ITEMS FOR SERVICE 15
  3.1 CHECK POINTS AFTER SERVICING 15
  3.2 PCB LOCATIONS 16
  3.3 JIG CONNECTION DIAGRAM 17
4. BLOCK DIAGRAM 20
5. DIAGNOSIS 33
  5.1 OPERATIONAL FLOW CHART 33
  5.2 CONNECTOR FUNCTION DESCRIPTION 34
  5.3 BACK END SECTION FLOW 35
6. SERVICE MODE 57
  6.1 DVD TEST MODE 57
7. DISASSEMBLY 61
8. EACH SETTING AND ADJUSTMENT 68
  8.1 DVD ADJUSTMENT 68
  8.2 VIDEO LEVEL ADJUSTMENT 73
  8.3 MOTHER UNIT ADJUSTMENT 75
  8.4 INVERTER ADJUSTMENT 77
  8.5 MONITOR ADJUSTMENT 79
  8.6 MONITOR TEST MODE 85
  8.7 CALIBRATION TEST 91
9. EXPLODED VIEWS AND PARTS LIST 100
  9.1 PACKING 100
  9.2 EXTERIOR(1) 104
  9.3 EXTERIOR(2) 106
  9.4 EXTERIOR(3) 110
  9.5 EXTERIOR(4) 112
  9.6 DVD MECHANISM MODULE 114
10. SCHEMATIC DIAGRAM 116
  10.1 MOTHER UNIT(SYSTEM PART)(GUIDE PAGE) 116
  10.2 MOTHER UNIT(POWER SUPPLY PART)(GUIDE PAGE) 122
  10.3 KEYBOARD UNIT 128
  10.4 MONITOR PCB(MONITOR PART)(GUIDE PAGE) 130
  10.5 MONITOR PCB(OSD & μCON PART)(GUIDE PAGE) 136
  10.6 DVD CORE UNIT(1/2)(GUIDE PAGE) 142
  10.7 DVD CORE UNIT(2/2) 148
  10.8 COMPOUND UNIT(A) AND COMPOUND UNIT(B) 150
  10.9 RCA PCB 151
  10.10 UPPER PCB 152
  10.11 OPT PCB 153
  10.12 MAIN PCB UNIT(SERVICE), SWITCH PCB UNIT AND VOLUME PCB UNIT 154
  10.13 WAVEFORMS 156
11. PCB CONNECTION DIAGRAM 158
  11.1 MOTHER UNIT 158
  11.2 KEYBOARD UNIT 162
  11.3 MONITOR PCB 164
  11.4 DVD CORE UNIT 168
  11.5 COMPOUND UNIT(A) AND COMPOUND UNIT(B) 172
  11.6 RCA PCB 173
  11.7 UPPER PCB 174
  11.8 OPT PCB 175
  11.9 MAIN PCB UNITSERVICE), SWITCH PCB UNIT AND VOLUME PCB UNIT 176
12. ELECTRICAL PARTS LIST 177

1. SERVICE PRECAUTIONS

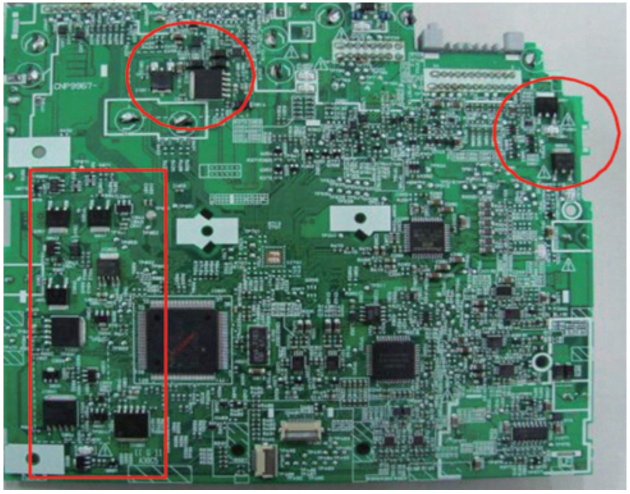
● Service Precautions

1) You should conform to the regulations governing the product (safety, radio and noise, and other regulations), and should keep the safety during servicing by following the safety instructions described in this manual.
2) Be careful in handling ICs. Some ICs such as MOS type are so fragile that they can be damaged by electrostatic induction.
3) Before disassembling the unit, be sure to turn off the power. Unplugging and plugging the connectors during power-on mode may damage the ICs inside the unit.
4)To protect the pickup unit from electrostatic discharge during servicing, take an appropriate treatment (shorting-solder) by referring to "the DISASSEMBLY" .
5) After replacing the pickup unit, be sure to skew adjustment.
6)During disassembly, be sure to turn the power off since an internal IC might be destroyed when a connector is plugged or unplugged.
7) In case the internal fuse has blown, check the voltage of the rear stage.
8) Handling instructions for touch panel
   Please handle the touch panel with care as it contains glass.
   Dropping or giving a strong shock may break the panel.
   Wear gloves, etc. to protect your hands from the glass edges that are not deburred.
9) Remove a small board (2 screws) provided for pulling out an RCA line, before removing the mother board.
10) Hot areas
   Red area: Hot area. Be careful not to burn yourself

Moter Unit(Side A)

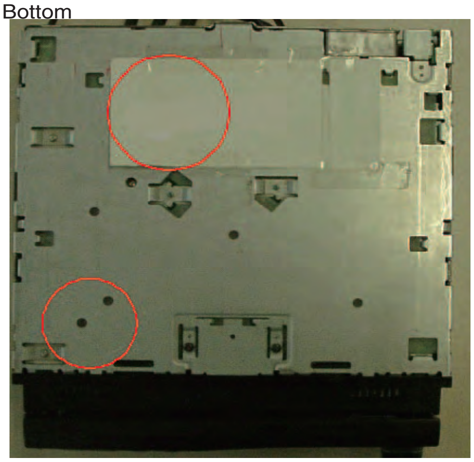


Moter Unit(Side B)



Red-circled area: The heat from hot parts on the B-side of the board is removed from the product bottom through a heat transfer sheet.
Be careful not to burn yourself with the hot area.

Bottom



COMPACT disc DIGITAL VIDEO

COMPACT disc DIGITAL AUDIO

COMPACT disc DIGITAL AUDIO TEXT

Plays Windows Media™

DVD VIDEO

DOLBY DIGITAL PRO LOGIC II

dts™ Digital Out

DIVX

DVD is a trademark of DVD Format/Logo Licensing Corporation.

NOTES ON SOLDERING

- For environmental protection, lead-free solder is used on the printed circuit boards mounted in this unit.
  Be sure to use lead-free solder and a soldering iron that can meet specifications for use with lead-free solders for repairs accompanied by reworking of soldering.

- Compared with conventional eutectic solders, lead-free solders have higher melting points, by approximately 40°C.
  Therefore, for lead-free soldering, the tip temperature of a soldering iron must be set to around 373°C in general, although the temperature depends on the heat capacity of the PC board on which reworking is required and the weight of the tip of the soldering iron.

Compared with eutectic solders, lead-free solders have higher bond strengths but slower wetting times and higher melting temperatures (hard to melt/easy to harden).

The following lead-free solders are available as service parts:

- Parts numbers of lead-free solder:
  GYP1006 1.0 in dia.
  GYP1007 0.6 in dia.
  GYP1008 0.3 in dia.

2. SPECIFICATIONS

2.1 SPECIFICATIONS

● AVH-P5900DVD/XN/UC

General

Power source	14.4 V DC (10.8 V to 15.1 V allowable)
Grounding system	Negative type
Max. current consumption	10.0 A
Backup current	5 mA or less
Dimensions (W × H × D):	
DIN	
Chassis	178 × 50 × 160 mm (7 × 2 × 6-1/4 in.)
Nose	188 × 58 × 33 mm (7-3/8 × 2-1/4 × 1-1/4 in.)
D	
Chassis	178 × 50 × 165 mm (7 × 2 × 6-1/2 in.)
Nose	170 × 46 × 28 mm (6-3/4 × 1-3/4 × 1-1/8 in.)
Weight	2.4 kg (5.3 lbs)

Display

Screen size/aspect ratio	7.0 inch wide/16:9 (effective display area: 154 × 87 mm)
Pixels	336 960 (1 440 × 234)
Type	TFT active matrix, transmissive type
Color system	NTSC
Storage temperature range	-4 °F to +176 °F
Angle adjustment	50° to 110° (initial settings: 90°)

Audio

Maximum power output	50 W × 4 50 W × 2/4 Ω + 70 W × 1/2 Ω (for subwoofer)
Continuous power output	22 W × 4 (50 Hz to 15 000 Hz, 5% THD, 4 Ω load, both channels driven)
Load impedance	4 Ω to 8 Ω × 4 4 Ω to 8 Ω × 2 + 2 Ω × 1
Preout max output level/output impedance	4.0 V/100 Ω
Equalizer (7-Band Graphic Equalizer):	
Frequency	50/125/315/800/2k/5k/12.5k Hz
Gain	±12 dB
Loudness contour:	
Low	+3.5 dB (100 Hz), +3 dB (10 kHz)
Mid	+10 dB (100 Hz), +6.5 dB (10 kHz)
High	+11 dB (100 Hz), +11 dB (10 kHz) (volume: –30 dB)
HPF:	
Frequency	50/63/80/100/125 Hz
Slope	–12 dB/oct
Subwoofer (mono):	
Frequency	50/63/80/100/125 Hz
Slope	–18 dB/oct
Gain	+6 dB to –24 dB
Phase	Normal/Reverse
Bass boost:	
Gain	+12 dB to 0 dB

DVD Player

System	DVD video, Video CD, CD, WMA, MP3, AAC, DivX system
Usable discs	DVD video, Video CD, CD, CD-R/RW, DVD-R/RW
Region number	1
Signal format:	
Sampling frequency	44.1/48/96 kHz
Number of quantization bits	16/20/24; linear
Frequency response	5 Hz to 44 000 Hz (with DVD, at sampling frequency 96 kHz)
Signal-to-noise ratio	97 dB (1 kHz) (IHF-A network) (CD: 96 dB (1 kHz) (IHF-A network))
Dynamic range	95 dB (1 kHz) (CD: 94 dB (1 kHz))
Distortion	0.008 % (1 kHz)
Output level:	
Video	1.0 Vp-p/75 Ω (±0.2 V)
Number of channels	2 (stereo)
MP3 decoding format	MPEG-1 & 2 Audio Layer 3
WMA decoding format	Ver. 7, 7.1, 8, 9, 10 (2ch audio) (Windows Media Player)
AAC decoding format	MPEG-4 AAC (iTunes® encoded only)
DivX decoding format	Home Theater Ver. 3, 4, 5.2 (.avi .divx)

FM tuner

Frequency range	87.9 MHz to 107.9 MHz
Usable sensitivity	8 dBf (0.7 μV/75 Ω, mono, S/N: 30 dB)
Signal-to-noise ratio	75 dB (IHF-A network)
Distortion	0.3 % (at 65 dBf, 1 kHz, stereo) 0.1 % (at 65 dBf, 1 kHz, mono)
Frequency response	30 Hz to 15 000 Hz (±3 dB)
Stereo separation	45 dB (at 65 dBf, 1 kHz)

AM tuner

Frequency range	530 kHz to 1 710 kHz (10 kHz)
Usable sensitivity	18 μV (S/N: 20 dB)
Signal-to-noise ratio	65 dB (IHF-A network)

AVH-P5900DVD/XNEW5

General

Power source	14.4 V DC (10.8 V to 15.1 V allowable)
Grounding system	Negative type
Max. current consumption	10.0 A
Backup current	**5 mA or less**
Dimensions (W × H × D):	
DIN	
Chassis	178 × 50 × 160 mm
Nose	188 × 58 × 33 mm
D	
Chassis	178 × 50 × 165 mm
Nose	170 × 46 × 28 mm
Weight	2.4 kg

Display

Screen size/aspect ratio	7.0 inch wide/16:9 (effective display area: 154 × 87 mm)
Pixels	336 960 (1 440 × 234)
Type	TFT active matrix, transmissive type
Color system	PAL/SECAM compatible
Storage temperature range	-20 °C to +80 °C
Angle adjustment	50° to 110° (initial settings: 90°)

Audio

Maximum power output	50 W × 4 50 W × 2/4 Ω + 70 W × 1/2 Ω (for subwoofer)
Continuous power output	22 W × 4 (50 Hz to 15 000 Hz, 5% THD, 4 Ω load, both channels driven)
Load impedance	4 Ω to 8 Ω × 4 4 Ω to 8 Ω × 2 + 2 Ω × 1
Preout max output level/output impedance	4.0 V/100 Ω
Equalizer (7-Band Graphic Equalizer):	
Frequency	50/125/315/800/2k/5k/12.5k Hz
Gain	±12 dB
Loudness contour:	
Low	+3.5 dB (100 Hz), +3 dB (10 kHz)
Mid	+10 dB (100 Hz), +6.5 dB (10 kHz)
High	+11 dB (100 Hz), +11 dB (10 kHz) (volume: –30 dB)
HPF:	
Frequency	50/63/80/100/125 Hz
Slope	–12 dB/oct
Subwoofer (mono):	
Frequency	50/63/80/100/125 Hz
Slope	–18 dB/oct
Gain	+6 dB to –24 dB
Phase	Normal/Reverse
Bass boost:	
Gain	+12 dB to 0 dB

DVD Player

System	DVD video, DVD-VR, Video CD, CD, WMA, MP3, AAC, DivX system
Usable discs	DVD video, Video CD, CD, CD-R/RW, DVD-R/RW
Region number	2
Signal format:	
Sampling frequency	44.1/48/96 kHz
Number of quantization bits	16/20/24; linear
Frequency response	5 Hz to 44 000 Hz (with DVD, at sampling frequency 96 kHz)
Signal-to-noise ratio	97 dB (1 kHz) (IEC-A network) (CD: 96 dB (1 kHz) (IEC-A network))
Dynamic range	95 dB (1 kHz) (CD: 94 dB (1 kHz))
Distortion	0.008 % (1 kHz)
Output level:	
Video	1.0 Vp-p/75 Ω (±0.2 V)
Number of channels	2 (stereo)
MP3 decoding format	MPEG-1 & 2 Audio Layer 3
WMA decoding format	Ver. 7, 7.1, 8, 9, 10 (2ch audio) (Windows Media Player)
AAC decoding format	MPEG-4 AAC (iTunes® encoded only)
DivX decoding format	Home Theater Ver. 3, 4, 5.2 (.avi .divx)

FM tuner

Frequency range	87.5 MHz to 108.0 MHz
Usable sensitivity	8 dBf (0.7 µV/75 Ω, mono, S/N: 30 dB)
Signal-to-noise ratio	75 dB (IEC-A network)
Distortion	0.3 % (at 65 dBf, 1 kHz, stereo) 0.1 % (at 65 dBf, 1 kHz, mono)
Frequency response	30 Hz to 15 000 Hz (±3 dB)
Stereo separation	45 dB (at 65 dBf, 1 kHz)

MW tuner

Frequency range	531 kHz to 1 602 kHz (9 kHz)
Usable sensitivity	18 µV (S/N: 20 dB)
Signal-to-noise ratio	65 dB (IEC-A network)

LW tuner

Frequency range	153 kHz to 281 kHz
Usable sensitivity	30 µV (S/N: 20 dB)
Signal-to-noise ratio	65 dB (IEC-A network)

● AVH-P5900DVD/XN/RE

General

Power source	14.4 V DC (10.8 V to 15.1 V allowable)
Grounding system	Negative type
Max. current consumption	10.0 A
Backup current	5 mA or less
Dimensions (W × H × D):	
DIN	
Chassis	178 × 50 × 160 mm
Nose	188 × 58 × 33 mm
D	
Chassis	178 × 50 × 165 mm
Nose	170 × 46 × 28 mm
Weight	2.4 kg

Display

Screen size/aspect ratio	7.0 inch wide/16:9 (effective display area: 154 × 87 mm)
Pixels	336 960 (1 440 × 234)
Type	TFT active matrix, transmissive type
Color system	PAL/SECAM compatible
Storage temperature range	-20 °C to +80 °C
Angle adjustment	50° to 110° (initial settings: 90°)

Audio

Maximum power output	50 W × 4 50 W × 2/4 Ω + 70 W × 1/2 Ω (for subwoofer)
Continuous power output	22 W × 4 (50 Hz to 15 000 Hz, 5% THD, 4 Ω load, both channels driven)
Load impedance	4 Ω to 8 Ω × 4 4 Ω to 8 Ω × 2 + 2 Ω × 1
Preout max output level/output impedance	4.0 V/100 Ω
Equalizer (7-Band Graphic Equalizer):	
Frequency	50/125/315/800/2k/5k/12.5k Hz
Gain	±12 dB
Loudness contour:	
Low	+3.5 dB (100 Hz), +3 dB (10 kHz)
Mid	+10 dB (100 Hz), +6.5 dB (10 kHz)
High	+11 dB (100 Hz), +11 dB (10 kHz) (volume: –30 dB)
HPF:	
Frequency	50/63/80/100/125 Hz
Slope	–12 dB/oct
Subwoofer (mono):	
Frequency	50/63/80/100/125 Hz
Slope	–18 dB/oct
Gain	+6 dB to –24 dB
Phase	Normal/Reverse
Bass boost:	
Gain	+12 dB to 0 dB

DVD Player

System	DVD video, DVD-VR, Video CD, CD, WMA, MP3, AAC, DivX system
Usable discs	DVD video, Video CD, CD, CD-R/RW, DVD-R/RW
Region number	5
Signal format:	
Sampling frequency	44.1/48/96 kHz
Number of quantization bits	16/20/24; linear
Frequency response	5 Hz to 44 000 Hz (with DVD, at sampling frequency 96 kHz)
Signal-to-noise ratio	97 dB (1 kHz) (IEC-A network) (CD: 96 dB (1 kHz) (IEC-A network))
Dynamic range	95 dB (1 kHz) (CD: 94 dB (1 kHz))
Distortion	0.008 % (1 kHz)
Output level:	
Video	1.0 Vp-p/75 Ω (±0.2 V)
Number of channels	2 (stereo)
MP3 decoding format	MPEG-1 & 2 Audio Layer 3
WMA decoding format	Ver. 7, 7.1, 8, 9, 10 (2ch audio) (Windows Media Player)
AAC decoding format	MPEG-4 AAC (iTunes® encoded only)
DivX decoding format	Home Theater Ver. 3, 4, 5.2 (.avi .divx)

FM tuner

Frequency range	87.5 MHz to 108.0 MHz
Usable sensitivity	8 dBf (0.7 µV/75 Ω, mono, S/N: 30 dB)
Signal-to-noise ratio	75 dB (IEC-A network)
Distortion	0.3 % (at 65 dBf, 1 kHz, stereo) 0.1 % (at 65 dBf, 1 kHz, mono)
Frequency response	30 Hz to 15 000 Hz (±3 dB)
Stereo separation	45 dB (at 65 dBf, 1 kHz)

MW tuner

Frequency range	531 kHz to 1 602 kHz (9 kHz)
Usable sensitivity	18 µV (S/N: 20 dB)
Signal-to-noise ratio	65 dB (IEC-A network)

LW tuner

Frequency range	153 kHz to 281 kHz
Usable sensitivity	30 µV (S/N: 20 dB)
Signal-to-noise ratio	65 dB (IEC-A network)

2.2 DISC/CONTENT FORMAT

DVD, Video CD and CD discs that display the logos shown below can be played back on this player.

DVD video

DVD
VIDEO ™

Video CD

COMPACT
disc
DIGITAL VIDEO

CD

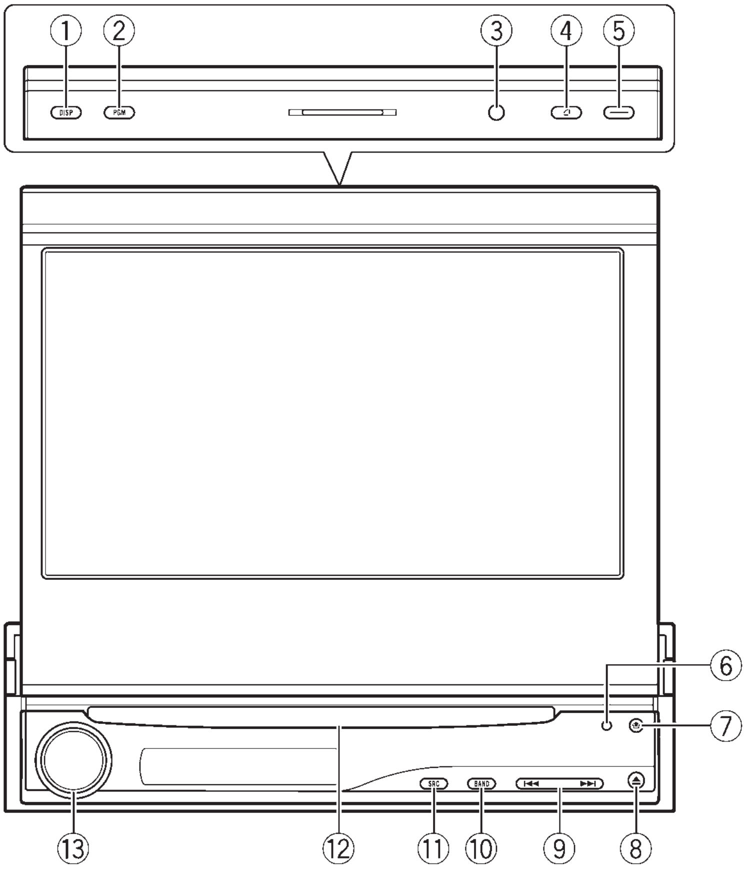
COMPACT
disc
DIGITAL AUDIO

COMPACT
disc
DIGITAL AUDIO
TEXT

Notes

- DVD is a trademark of DVD Format/Logo Licensing Corporation.
- This player can only play back discs bearing the marks shown above.

2.3 PANEL FACILITIES



What's What

Head unit

① **DISPLAY button**

Press to turn the information display on or off when the video is displayed.

Press and hold to switch between the displays on the sub-display.

- When a rear view camera video is displayed, press and hold **DISPLAY** return to the source display.

② **PGM button**

Press to operate the preprogrammed functions for each source.

③ **Ambient light sensor**

Senses ambient light. This system automatically adjusts the brightness of the display to compensate for ambient light.

④ **FLIP DOWN button**

Press to turn the LCD panel horizontal temporarily from upright position.

⑤ **OPEN/CLOSE button**

Press to open or close the LCD panel.

⑥ **RESET button**

Press to return to the factory settings (initial settings).

⑦ **DETACH button**

Press to remove the front panel from the head unit.

⑧ **EJECT button**
Press to eject a disc from this unit.

⑨ **◄◄/►►I button**
Press to do manual seek tuning, fast forward, reverse and track search controls.

⑩ **BAND/ESC button**
Press to select among three FM bands and one AM band and to cancel the control mode of functions.

⑪ **SOURCE button**
This unit is turned on by selecting a source. Press to cycle through all the available sources.

⑫ **Disc loading slot**
Insert a disc to play.

⑬ **VOLUME/ATT button**
Rotate it to increase or decrease the volume.
Press to quickly lower the volume level, by about 90%. Press once more to return to the original volume level.

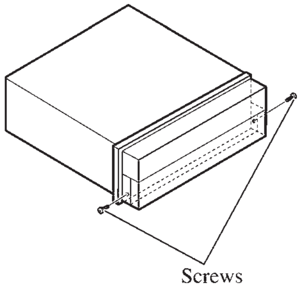
Optional remote control

The remote control CD-R55 is sold separately.
For details concerning operations, see the remote control manual. ■

Fastening the front panel

If you do not plan to detach the front panel, the front panel can be fastened with supplied screws.

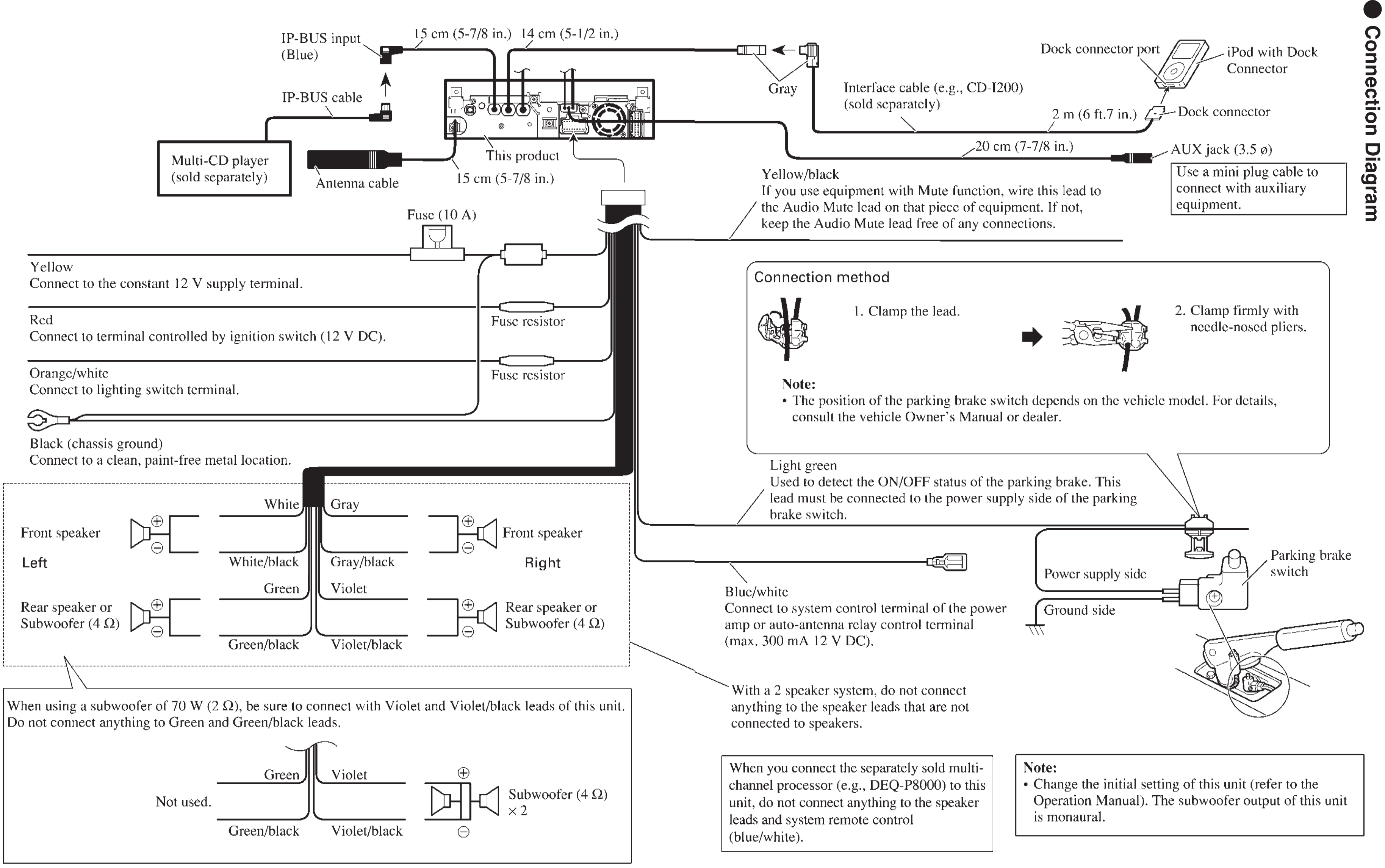
- **Fix the front panel to the unit using screws after removing the trim ring.**



JGZ20P070FTC

2.4 CONNECTION DIAGRAM

● Connection Diagram



IP-BUS input (Blue)
IP-BUS cable
Multi-CD player (sold separately)
15 cm (5-7/8 in.)
14 cm (5-1/2 in.)
This product
15 cm (5-7/8 in.)
Antenna cable
Gray
Interface cable (e.g., CD-I200) (sold separately)
Dock connector port
iPod with Dock Connector
2 m (6 ft.7 in.)
Dock connector
20 cm (7-7/8 in.)
AUX jack (3.5 ø)
Fuse (10 A)
Fuse resistor
Fuse resistor
White
Gray
Front speaker
Left
White/black
Gray/black
Front speaker
Right
Green
Violet
Rear speaker or Subwoofer (4 Ω)
Green/black
Violet/black
Rear speaker or Subwoofer (4 Ω)
Parking brake switch
Power supply side
Ground side
Green
Violet
Not used.
Green/black
Violet/black
Subwoofer (4 Ω) × 2

Use a mini plug cable to connect with auxiliary equipment.

Yellow/black
If you use equipment with Mute function, wire this lead to the Audio Mute lead on that piece of equipment. If not, keep the Audio Mute lead free of any connections.

Yellow
Connect to the constant 12 V supply terminal.

Red
Connect to terminal controlled by ignition switch (12 V DC).

Orange/white
Connect to lighting switch terminal.

Black (chassis ground)
Connect to a clean, paint-free metal location.

Connection method

1. Clamp the lead.

2. Clamp firmly with needle-nosed pliers.

Note:
- The position of the parking brake switch depends on the vehicle model. For details, consult the vehicle Owner's Manual or dealer.

Light green
Used to detect the ON/OFF status of the parking brake. This lead must be connected to the power supply side of the parking brake switch.

Blue/white
Connect to system control terminal of the power amp or auto-antenna relay control terminal (max. 300 mA 12 V DC).

With a 2 speaker system, do not connect anything to the speaker leads that are not connected to speakers.

When using a subwoofer of 70 W (2 Ω), be sure to connect with Violet and Violet/black leads of this unit. Do not connect anything to Green and Green/black leads.

When you connect the separately sold multi-channel processor (e.g., DEQ-P8000) to this unit, do not connect anything to the speaker leads and system remote control (blue/white).

Note:
- Change the initial setting of this unit (refer to the Operation Manual). The subwoofer output of this unit is monaural.

3. BASIC ITEMS FOR SERVICE

3.1 CHECK POINTS AFTER SERVICING

CHECK POINTS AFTER SERVICING (AVH)

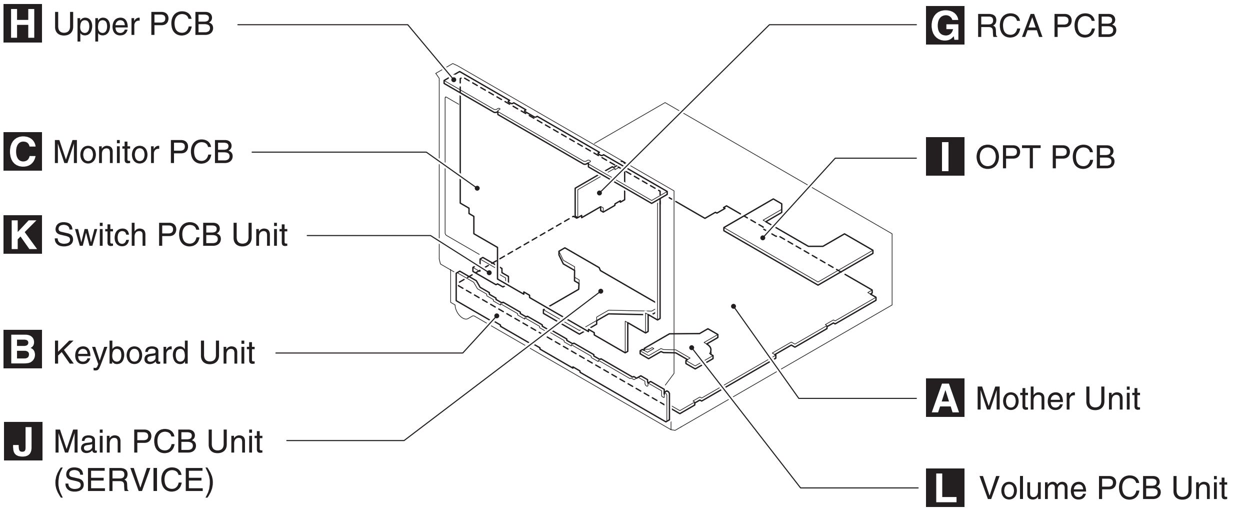
To keep the product quality after servicing, please confirm following check points.

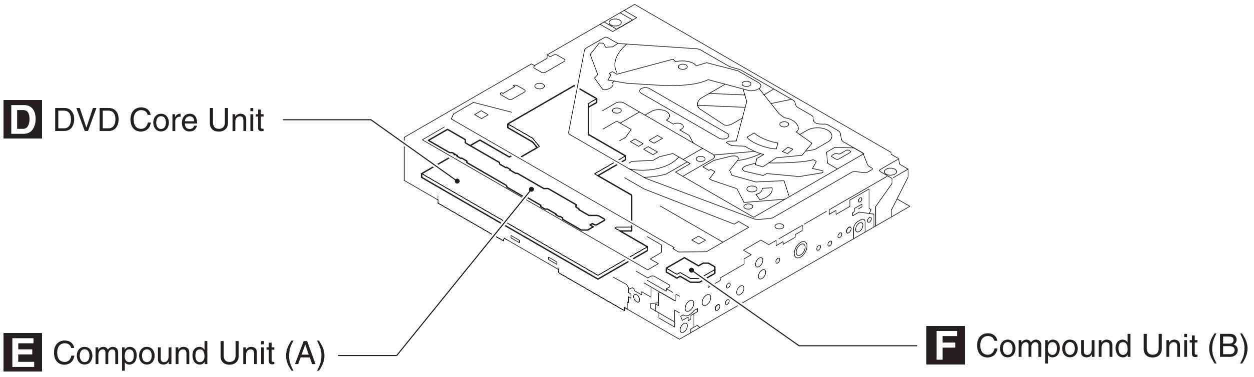
No.		Procedures	Check points	Remark
1		Confirm whether the customer complain has been solved. If the customer complain occurs with the specific media, use it for the operation check.	The customer complain must not be reappeared. Display, video, audio and operations must be normal.	
2	Flap-mecha	Check the operation of the flap mechanism.	The flap mechanism operation must be smooth without making the noise and scratches.	When flap-mecha exists
3	DVD	Measure playback error rates at the innermost and outermost tracks by using the test mode with the following disc. DVD test disc (GGV1025)	Deterioration of mecha-drive can be checked. The error rates must be less than 2.5e-4.	
4	DVD	Play back a DVD. (Menu operation; Title/chapter search)	Display, video, audio and operations must be normal.	
5	CD	Play back a CD. (Track search)	Display, audio and operations must be normal.	
6	FM/AM tuner	Check FM/AM tuner action. (Seek, Preset) Switch band to check both FM and AM.	Display, audio and operations must be normal.	
7	TV tuner	Check TV tuner action. (Seek; Preset)	Display, video, audio and operations must be normal.	
8		Check whether no disc is inside the product.	The media used for the operating check must be ejected.	
9		Appearance check	No scratches or dirt on its appearance after receiving it for service.	

See the table below for the items to be checked regarding video and audio:

Item to be checked regarding video	**Item to be checked regarding audio**
Block-noise	Distortion
Horizontal noise	Noise
Dot noise	Volume too low
Disturbed image (video jumpiness)	Volume too high
Too dark	Volume fluctuating
Too bright	Sound interrupted
Mottled color	

3.2 PCB LOCATIONS


H Upper PCB
C Monitor PCB
K Switch PCB Unit
B Keyboard Unit
J Main PCB Unit (SERVICE)
G RCA PCB
I OPT PCB
A Mother Unit
L Volume PCB Unit


D DVD Core Unit
E Compound Unit (A)
F Compound Unit (B)

Unit Number : CXC7508(UC)
Unit Number : CXC7506(EW5)
Unit Number : CXC7507(RE)
Unit Name : DVD Amp Assy

Unit Number : CWN2330
Unit Name : Monitor Unit

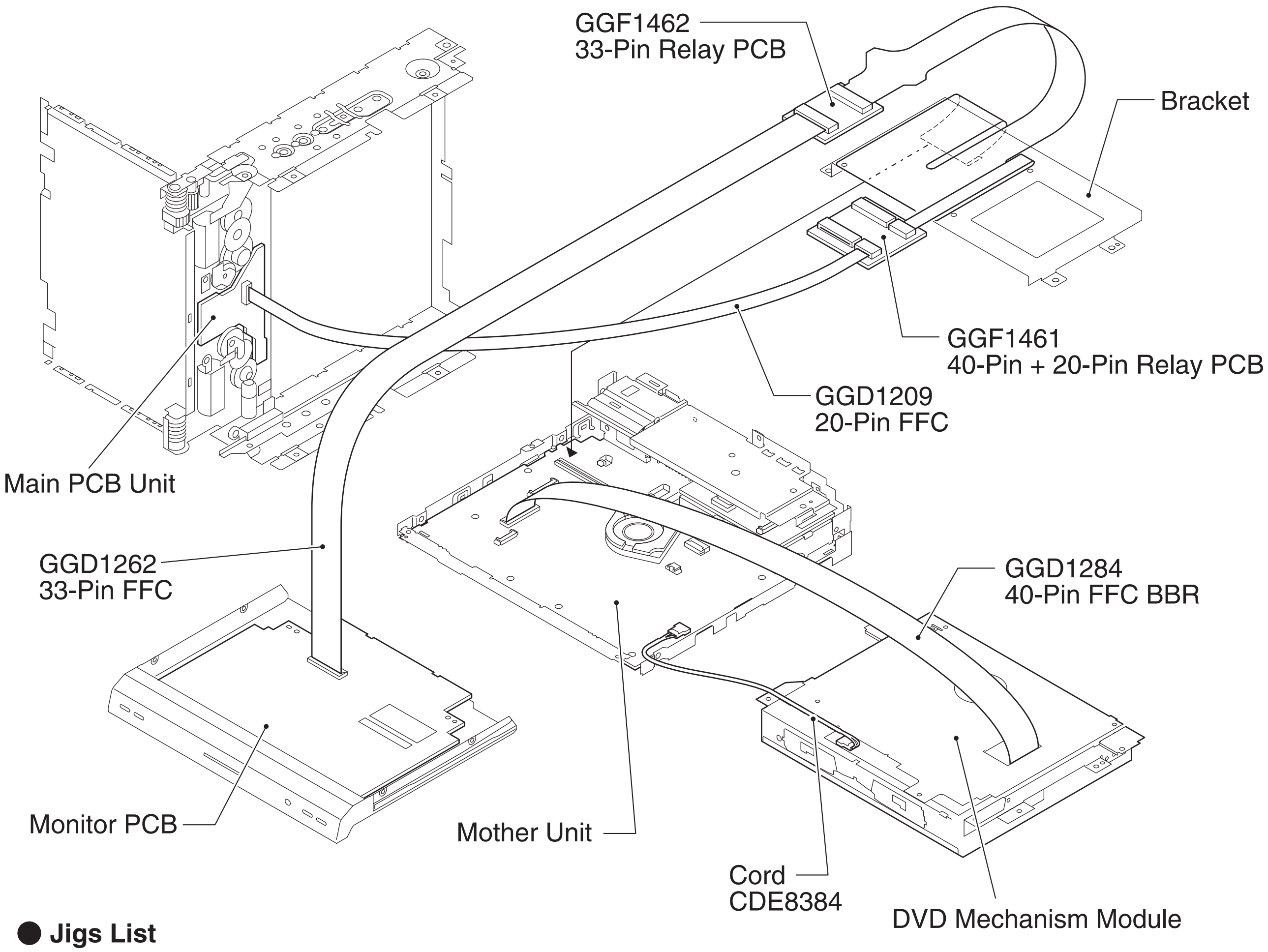
Monitor Unit
Consists of
Monitor PCB
Upper PCB

Unit Number : YWX5005
Unit Name : DVD Core Unit
Unit Number : CWX3154
Unit Name : Compound Unit(A)
Unit Number : CWX3394
Unit Name : Compound Unit(B)

DVD Amp Assy
Consists of
Mother Unit
OPT PCB
RCA PCB

Unit Number : CXX2316
Unit Name : Main PCB Unit(SERVICE)
Unit Number : CZW5029
Unit Name : Switch PCB Unit
Unit Number : CZW5028
Unit Name : Volume PCB Unit

3.3 JIG CONNECTION DIAGRAM


GGF1462
33-Pin Relay PCB
Bracket
GGF1461
40-Pin + 20-Pin Relay PCB
GGD1209
20-Pin FFC
Main PCB Unit
GGD1262
33-Pin FFC
GGD1284
40-Pin FFC BBR
Monitor PCB
Mother Unit
Cord
CDE8384
DVD Mechanism Module

● Jigs List

Name	Jig No.	Remarks
40-Pin FFC BBR	GGD1284	DVD Mechanism Module <--> DVD Amp Assy
33-Pin Relay PCB	GGF1462	DVD Amp Assy <--> Monitor Unit
33-Pin FFC	GGD1262	DVD Amp Assy <--> Monitor Unit
40-Pin + 20-Pin Relay PCB	GGF1461	DVD Amp Assy <--> Main PCB Unit
20-Pin FFC	GGD1209	DVD Amp Assy <--> Main PCB Unit
Disc	GGV1018	Skew adjustment
TORX driver(T2)	GGK1095	Skew adjustment
Bond	GEM1033	Skew adjustment

Grease List

Name	Jig No.	Remarks
Grease	GEM1024	DVD Mechanism Module and Chassis
Grease	GEM1043	DVD Mechanism Module and Chassis
Grease	GEM1045	DVD Mechanism Module
Grease	GEM1050	DVD Mechanism Module
Locking agents	1401M	DVD Mechanism Module (1401M:produced by THREE BOND)
Grease	GEM1011	Chassis
Grease	GEM1047	Chassis
Grease	GEM1071	Chassis
Grease	GEM1072	Chassis

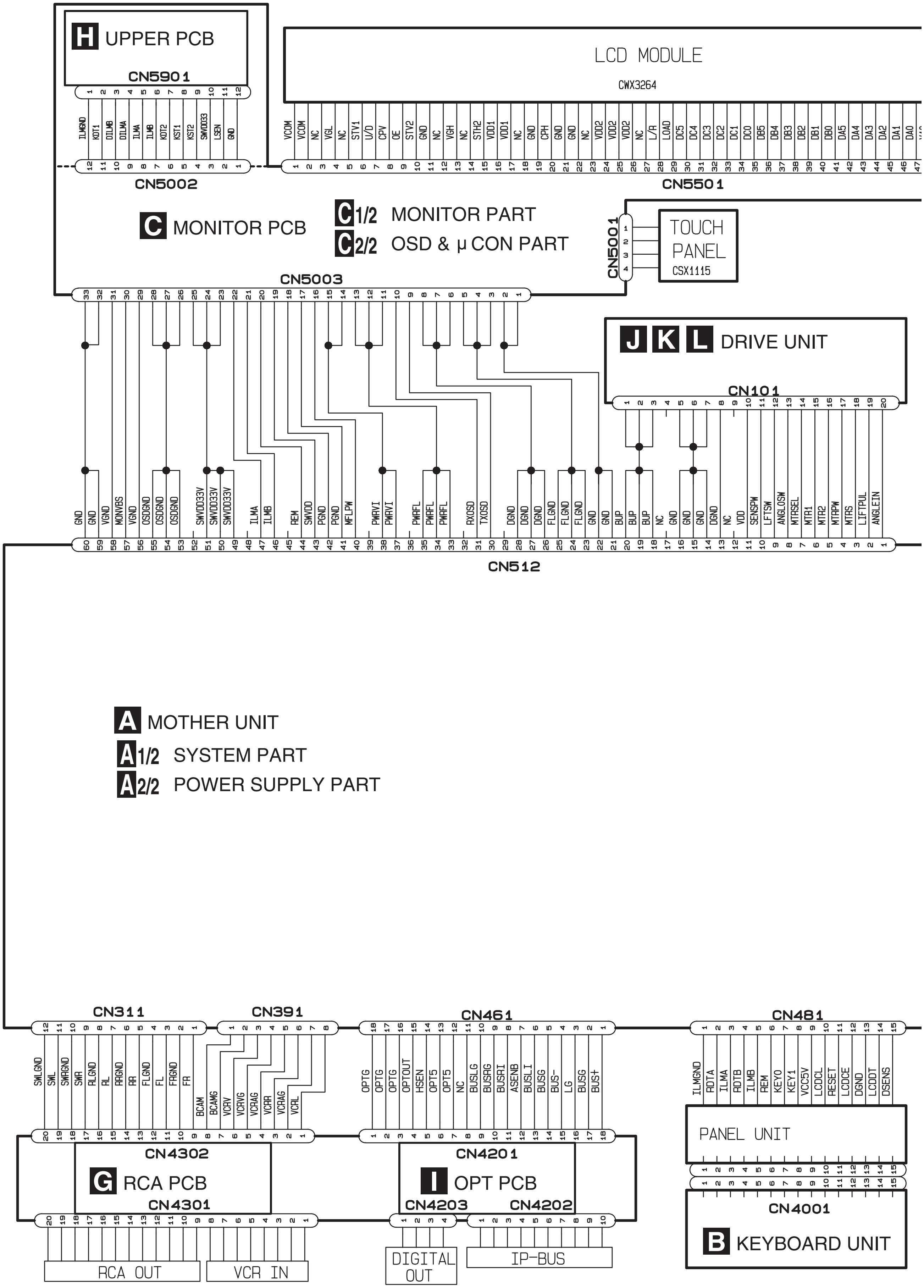
CLEANING

Before shipping out the product, be sure to clean the following portions by using the prescribed cleaning tools:

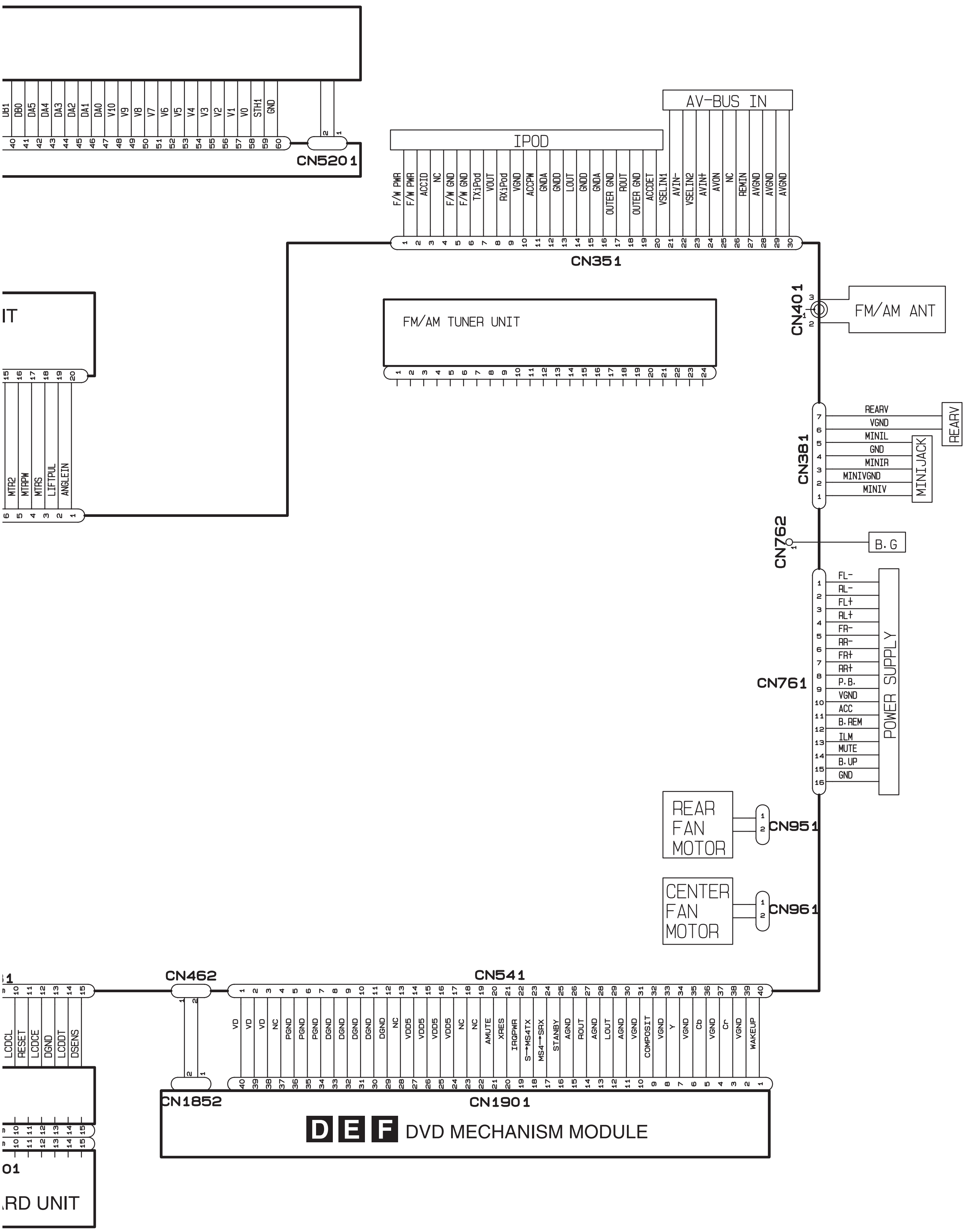
Portions to be cleaned	Cleaning tools
DVD pickup lenses	Cleaning liquid : GEM1004 Cleaning paper : GED-008

Portions to be cleaned	Cleaning tools
Fans	Cleaning paper : GED-008

4. BLOCK DIAGRAM

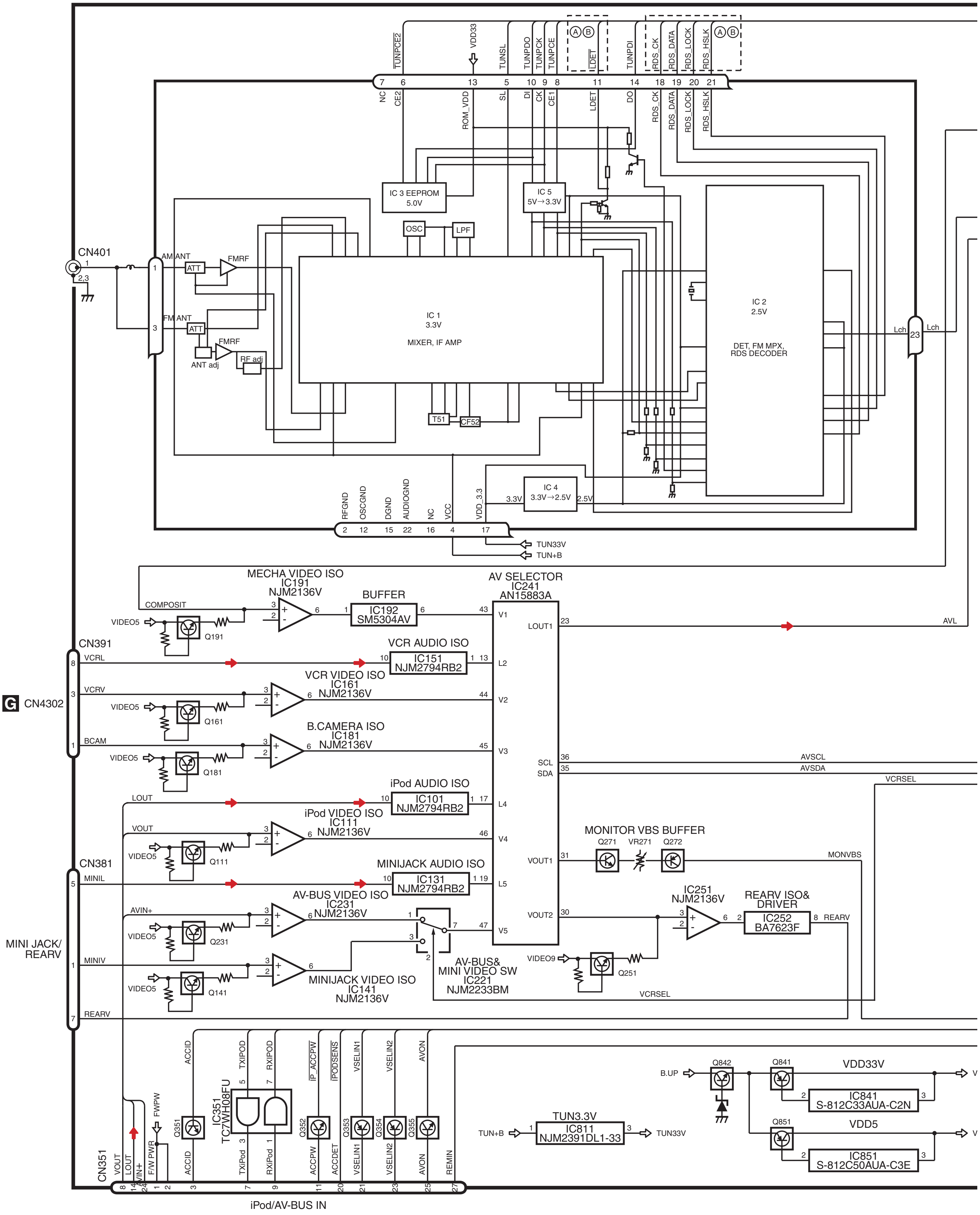


H UPPER PCB
CN5901
ILMGND
KDT1
DILMB
DILMA
ILMA
ILMB
KDT2
KST1
KST2
SWVDD33
LSEN
GND
CN5002
LCD MODULE
CWX3264
VCOM
VCOM
NC
VGL
NC
STV1
U/D
CPV
OE
STV2
GND
NC
VGH
NC
STH2
VDD1
VDD1
NC
GND
CPH
GND
GND
NC
VDD2
VDD2
VDD2
NC
L/R
LOAD
DC5
DC4
DC3
DC2
DC1
DC0
DB5
DB4
DB3
DB2
DB1
DB0
DA5
DA4
DA3
DA2
DA1
DA0
CN5501
C MONITOR PCB
C1/2 MONITOR PART
C2/2 OSD & μ CON PART
CN5001
TOUCH PANEL
CSX1115
CN5003
J K L DRIVE UNIT
CN101
GND
GND
VGND
MONVBS
VGND
OSDGND
OSDGND
OSDGND
SWVDD33V
SWVDD33V
SWVDD33V
ILMA
ILMB
REM
SWVDD
PGND
PGND
MFLPW
PWRVI
PWRVI
PWRFL
PWRFL
PWRFL
RXOSD
TXOSD
DGND
DGND
DGND
FLGND
FLGND
FLGND
GND
GND
BUP
BUP
BUP
NC
GND
GND
GND
DGND
NC
VDD
SENSPW
LFTSW
ANGLOSW
MTRSEL
MTR1
MTR2
MTRPW
MTRS
LIFTPUL
ANGLEIN
CN512
A MOTHER UNIT
A1/2 SYSTEM PART
A2/2 POWER SUPPLY PART
CN311
SWLGND
SWL
SWRGND
SWR
RLGND
RL
RRGND
RR
FLGND
FL
FRGND
FR
CN391
BCAM
BCAMG
VCRV
VCRVG
VCRAG
VCRR
VCRAG
VCRL
CN461
OPTG
OPTG
OPTG
OPTOUT
HSEN
OPT5
OPT5
NC
BUSLG
BUSRG
BUSRI
ASENB
BUSLI
BUSG
BUS-
LG
BUSG
BUS+
CN481
ILMGND
RDTA
ILMA
RDTB
ILMB
REM
KEY0
KEY1
VCC5V
LCDCL
RESET
LCDCE
DGND
LCDDT
DSENS
CN4302
G RCA PCB
CN4301
CN4201
I OPT PCB
CN4203
CN4202
PANEL UNIT
CN4001
B KEYBOARD UNIT
RCA OUT
VCR IN
DIGITAL OUT
IP-BUS

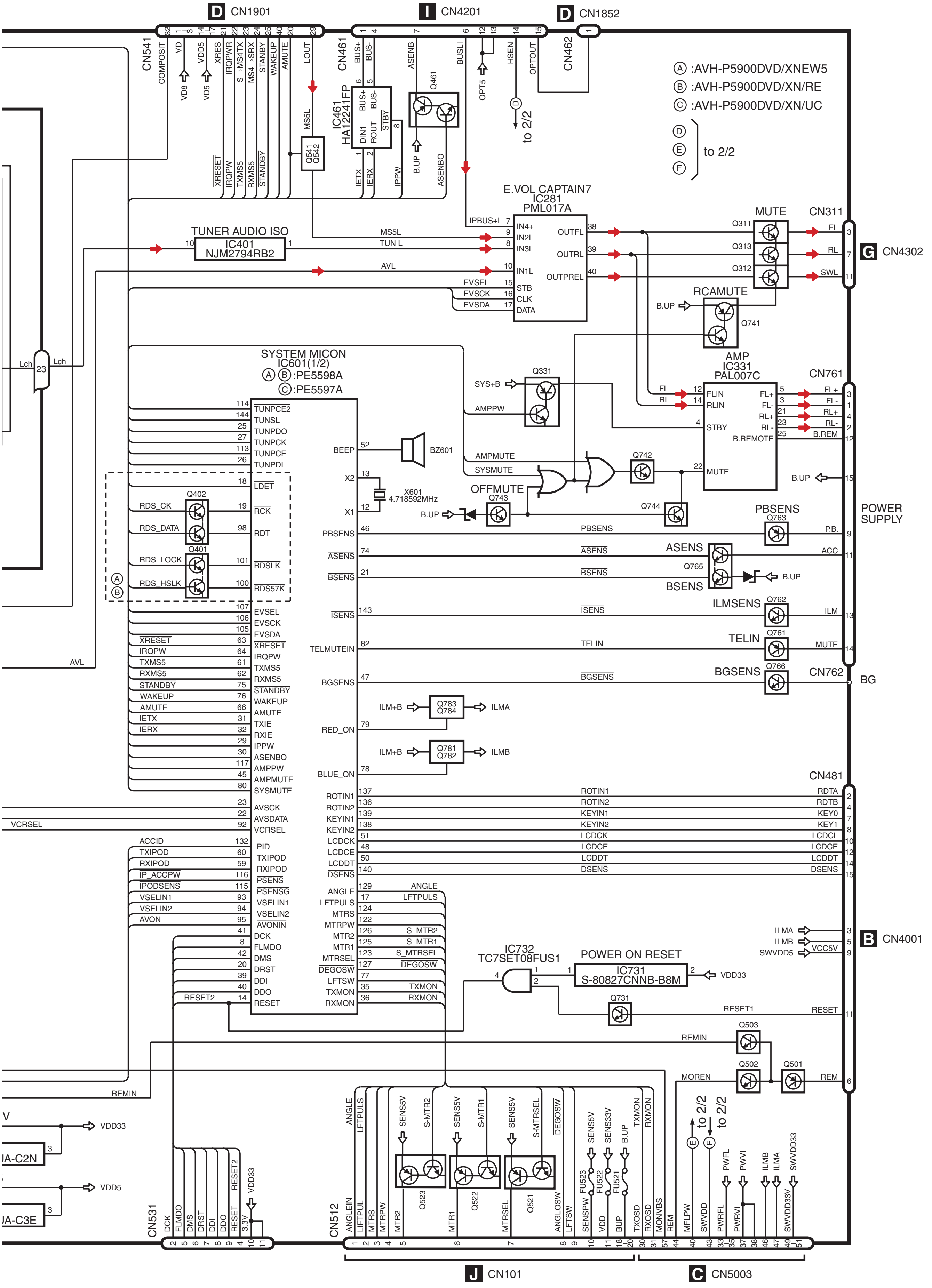


CN5201
DB1 DB0 DA5 DA4 DA3 DA2 DA1 DA0 V10 V9 V8 V7 V6 V5 V4 V3 V2 V1 V0 STH1 GND
AV-BUS IN
IPOD
F/W PWR
F/W PWR
ACCID
NC
F/W GND
F/W GND
TXiPod
VOUT
RXiPod
VGND
ACCPW
GNDA
GNDD
LOUT
GNDD
GNDA
OUTER GND
ROUT
OUTER GND
ACCDET
VSELIN1
AVIN-
VSELIN2
AVIN+
AVON
NC
REMIN
AVGND
AVGND
AVGND
CN351
CN401
FM/AM ANT
FM/AM TUNER UNIT
IT
MTR2
MTRPW
MTRS
LIFTPUL
ANGLEIN
CN381
REARV
VGND
MINIL
GND
MINIR
MINIVGND
MINIV
MINIJACK
REARV
CN762
B.G
CN761
FL-
RL-
FL+
RL+
FR-
RR-
FR+
RR+
P.B.
VGND
ACC
B.REM
ILM
MUTE
B.UP
GND
POWER SUPPLY
REAR FAN MOTOR
CN951
CENTER FAN MOTOR
CN961
CN462
CN541
LCDCL
RESET
LCDCE
DGND
LCDDT
DSENS
VD VD VD NC PGND PGND PGND DGND DGND DGND DGND DGND NC VDD5 VDD5 VDD5 VDD5 NC NC AMUTE XRES IRQPWR S→MS4TX MS4→SRX STANBY AGND ROUT AGND LOUT AGND VGND COMPOSIT VGND Y VGND Cb VGND Cr VGND WAKEUP
CN1852
CN1901
D E F DVD MECHANISM MODULE
01
RD UNIT

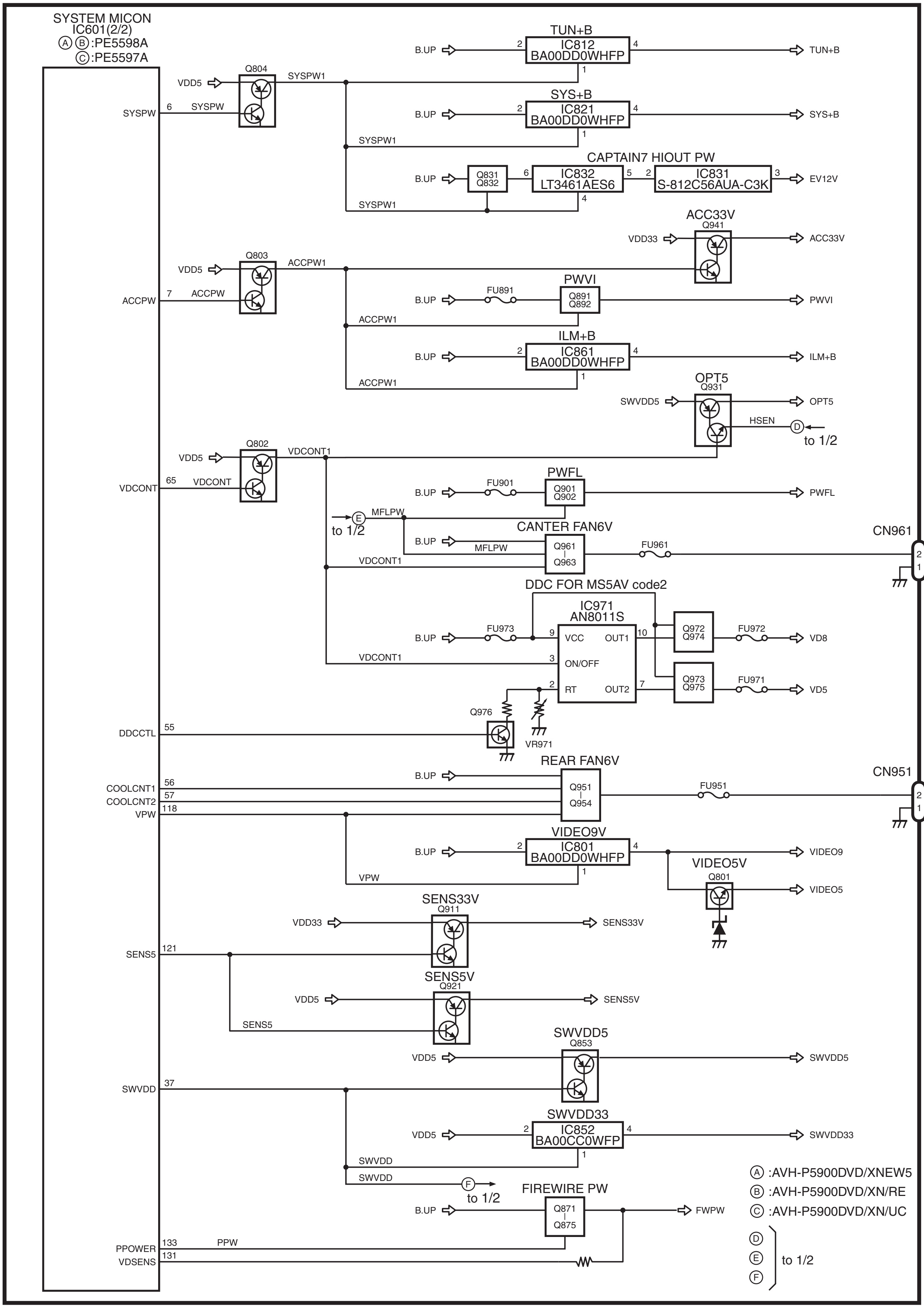
A MOTHER UNIT (1/2)



A
B
C
D
E
F
TUNPCE2
VDD33
TUNSL
TUNPDO
TUNPCK
TUNPCE
LDET
TUNPDI
RDS_CK
RDS_DATA
RDS_LOCK
RDS_HSLK
7 6 13 5 10 9 8 11 14 18 19 20 21
NC
CE2
ROM_VDD
SL
DI
CK
CE1
DO
IC 3 EEPROM 5.0V
IC 5 5V→3.3V
OSC
LPF
CN401
AM ANT
FMRF
ATT
FM ANT
ANT adj
RF adj
IC 1 3.3V MIXER, IF AMP
IC 2 2.5V DET, FM MPX, RDS DECODER
T51
CF52
Lch
23
IC 4 3.3V→2.5V
3.3V
2.5V
RFGND
OSCGND
DGND
AUDIOGND
NC
VCC
VDD_3.3
2 12 15 22 16 4 17
TUN33V
TUN+B
MECHA VIDEO ISO IC191 NJM2136V
COMPOSIT
VIDEO5
Q191
BUFFER IC192 SM5304AV
AV SELECTOR IC241 AN15883A
V1
LOUT1
AVL
CN391
VCRL
VCR AUDIO ISO IC151 NJM2794RB2
L2
G CN4302
VCRV
VCR VIDEO ISO IC161 NJM2136V
Q161
V2
BCAM
B.CAMERA ISO IC181 NJM2136V
Q181
V3
SCL
SDA
AVSCL
AVSDA
VCRSEL
LOUT
iPod AUDIO ISO IC101 NJM2794RB2
L4
VOUT
iPod VIDEO ISO IC111 NJM2136V
Q111
V4
MONITOR VBS BUFFER
Q271
VR271
Q272
VOUT1
MONVBS
CN381
MINIL
MINIJACK AUDIO ISO IC131 NJM2794RB2
L5
AVIN+
AV-BUS VIDEO ISO IC231 NJM2136V
Q231
V5
VOUT2
IC251 NJM2136V
REARV ISO& DRIVER IC252 BA7623F
REARV
MINI JACK/ REARV
MINIV
MINIJACK VIDEO ISO IC141 NJM2136V
Q141
AV-BUS& MINI VIDEO SW IC221 NJM2233BM
VIDEO9
Q251
ACCID
TXIPOD
RXIPOD
IP_ACCPW
IPODSENS
VSELIN1
VSELIN2
AVON
IC351 TC7WH08FU
FWPW
Q351
Q352
Q353
Q354
Q355
CN351
VOUT
LOUT
AVIN+
F/W PWR
TXiPod
RXiPod
ACCPW
ACCDET
REMIN
8 14 24 1 2 3 7 9 11 20 21 23 25 27
iPod/AV-BUS IN
B.UP
Q842
Q841
VDD33V
IC841 S-812C33AUA-C2N
TUN3.3V
TUN+B
IC811 NJM2391DL1-33
TUN33V
Q851
VDD5
IC851 S-812C50AUA-C3E


D CN1901
I CN4201
D CN1852
CN541
COMPOSIT
VD
VDD5
XRES
IRQPWR
S→MS4TX
MS4→SRX
STANBY
WAKEUP
AMUTE
LOUT
VD8
VD5
XRESET
IRQPW
TXMS5
RXMS5
STANDBY
MS5L
Q541 Q542
CN461
BUS+
BUS-
IC461 HA12241FP
DIN1
ROUT
STBY
IETX
IERX
IPPW
ASENB
Q461
B.UP
ASENBO
BUSLI
OPT5
HSEN
to 2/2
OPTOUT
CN462
Ⓐ :AVH-P5900DVD/XNEW5
Ⓑ :AVH-P5900DVD/XN/RE
Ⓒ :AVH-P5900DVD/XN/UC
Ⓓ Ⓔ Ⓕ to 2/2
E.VOL CAPTAIN7 IC281 PML017A
IPBUS+L
IN4+
IN2L
IN3L
IN1L
STB
CLK
DATA
OUTFL
OUTRL
OUTPREL
MUTE
CN311
Q311
Q313
Q312
FL
RL
SWL
G CN4302
RCAMUTE
Q741
TUNER AUDIO ISO IC401 NJM2794RB2
TUN L
AVL
EVSEL
EVSCK
EVSDA
Lch
SYSTEM MICON IC601(1/2)
Ⓐ Ⓑ:PE5598A
Ⓒ:PE5597A
TUNPCE2
TUNSL
TUNPDO
TUNPCK
TUNPCE
TUNPDI
LDET
RCK
RDT
RDSLK
RDS57K
RDS_CK
RDS_DATA
RDS_LOCK
RDS_HSLK
Q402
Q401
EVSEL
EVSCK
EVSDA
XRESET
IRQPW
TXMS5
RXMS5
STANDBY
WAKEUP
AMUTE
TXIE
RXIE
IPPW
ASENBO
AMPPW
AMPMUTE
SYSMUTE
AVSCK
AVSDATA
VCRSEL
PID
TXIPOD
RXIPOD
PSENS
PSENSG
VSELIN1
VSELIN2
AVONIN
ACCID
IP_ACCPW
IPODSENS
AVON
DCK
FLMDO
DMS
DRST
DDI
DDO
RESET
RESET2
BEEP
BZ601
X2
X1
X601 4.718592MHz
PBSENS
ASENS
BSENS
ISENS
TELMUTEIN
BGSENS
RED_ON
BLUE_ON
ROTIN1
ROTIN2
KEYIN1
KEYIN2
LCDCK
LCDCE
LCDDT
DSENS
ANGLE
LFTPULS
MTRS
MTRPW
MTR2
MTR1
MTRSEL
DEGOSW
LFTSW
TXMON
RXMON
SYS+B
Q331
AMPPW
AMPMUTE
SYSMUTE
OFFMUTE
Q743
Q742
Q744
AMP IC331 PAL007C
FLIN
RLIN
STBY
MUTE
FL+
FL-
RL+
RL-
B.REMOTE
CN761
B.REM
B.UP
POWER SUPPLY
PBSENS
Q763
P.B.
ASENS
Q765
ACC
BSENS
ILMSENS
Q762
ILM
TELIN
Q761
MUTE
BGSENS
Q766
CN762
BG
ILM+B
Q783 Q784
ILMA
Q781 Q782
ILMB
CN481
RDTA
RDTB
KEY0
KEY1
LCDCL
LCDCE
LCDDT
DSENS
S_MTR2
S_MTR1
S_MTRSEL
IC732 TC7SET08FUS1
POWER ON RESET
IC731 S-80827CNNB-B8M
VDD33
Q731
RESET1
RESET
ILMA
ILMB
SWVDD5
VCC5V
B CN4001
Q503
REMIN
Q502
Q501
MOREN
REM
VDD33
VDD5
IA-C2N
IA-C3E
CN531
3.3V
CN512
ANGLEIN
LIFTPUL
SENS5V
S-MTR2
S-MTR1
S-MTRSEL
Q523
Q522
Q521
ANGLOSW
SENSPW
SENS33V
FU523
FU522
FU521
VDD
BUP
TXOSD
RXOSD
MONVBS
MFLPW
SWVDD
PWRFL
PWRVI
PWFL
PWVI
SWVDD33V
SWVDD33
J CN101
C CN5003

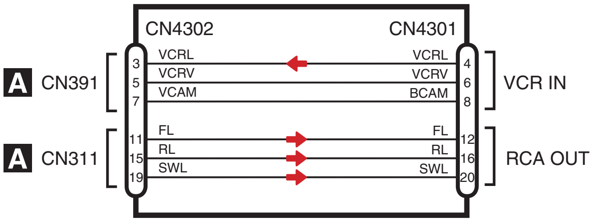
A MOTHER UNIT (2/2)


SYSTEM MICON
IC601(2/2)
Ⓐ Ⓑ :PE5598A
Ⓒ :PE5597A
SYSPW
ACCPW
VDCONT
DDCCTL
COOLCNT1
COOLCNT2
VPW
SENS5
SWVDD
PPOWER
VDSENS
6
7
65
55
56
57
118
121
37
133
131
Q804
VDD5
SYSPW
SYSPW1
TUN+B
IC812
BA00DD0WHFP
B.UP
TUN+B
SYS+B
IC821
BA00DD0WHFP
SYS+B
CAPTAIN7 HIOUT PW
Q831
Q832
IC832
LT3461AES6
IC831
S-812C56AUA-C3K
EV12V
ACC33V
Q941
VDD33
ACC33V
Q803
ACCPW1
ACCPW
PWVI
FU891
Q891
Q892
PWVI
ILM+B
IC861
BA00DD0WHFP
ILM+B
OPT5
Q931
SWVDD5
OPT5
HSEN
Ⓓ
to 1/2
Q802
VDCONT1
VDCONT
PWFL
FU901
Q901
Q902
PWFL
Ⓔ
MFLPW
to 1/2
CANTER FAN6V
Q961
Q963
FU961
CN961
CENTER FAN
DDC FOR MS5AV code2
IC971
AN8011S
FU973
VCC
ON/OFF
RT
OUT1
OUT2
Q972
Q974
FU972
VD8
Q973
Q975
FU971
VD5
Q976
VR971
REAR FAN6V
Q951
Q954
FU951
CN951
REAR FAN
VIDEO9V
IC801
BA00DD0WHFP
VIDEO9
VIDEO5V
Q801
VIDEO5
VPW
SENS33V
Q911
VDD33
SENS33V
SENS5V
Q921
VDD5
SENS5V
SENS5
SWVDD5
Q853
SWVDD5
SWVDD33
IC852
BA00CC0WFP
SWVDD33
SWVDD
Ⓕ
to 1/2
FIREWIRE PW
Q871
Q875
FWPW
PPW
2
4
1
5
3
6
9
10
7

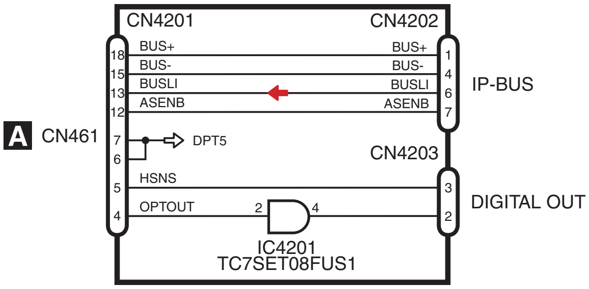
Ⓐ :AVH-P5900DVD/XNEW5
Ⓑ :AVH-P5900DVD/XN/RE
Ⓒ :AVH-P5900DVD/XN/UC

Ⓓ Ⓔ Ⓕ to 1/2

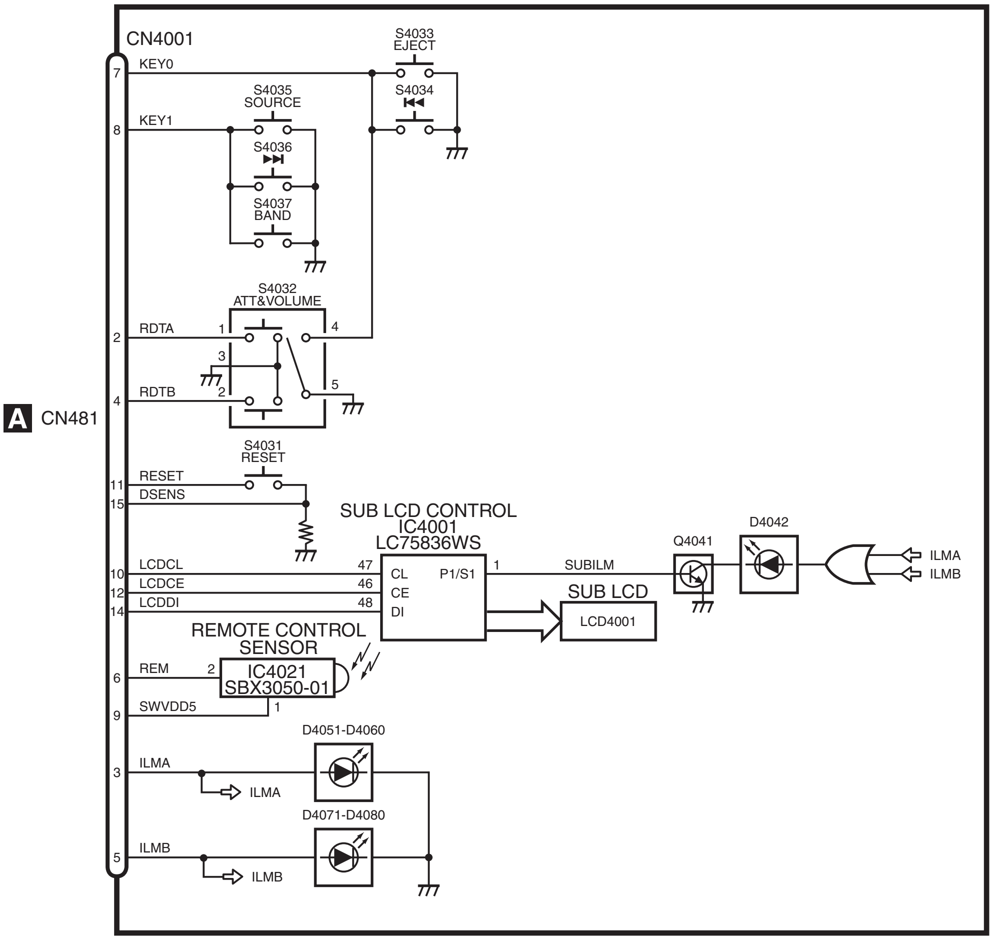
G RCA PCB


CN4302
CN4301
A CN391
3 VCRL
5 VCRV
7 VCAM
VCRL 4
VCRV 6
BCAM 8
VCR IN
A CN311
11 FL
15 RL
19 SWL
FL 12
RL 16
SWL 20
RCA OUT

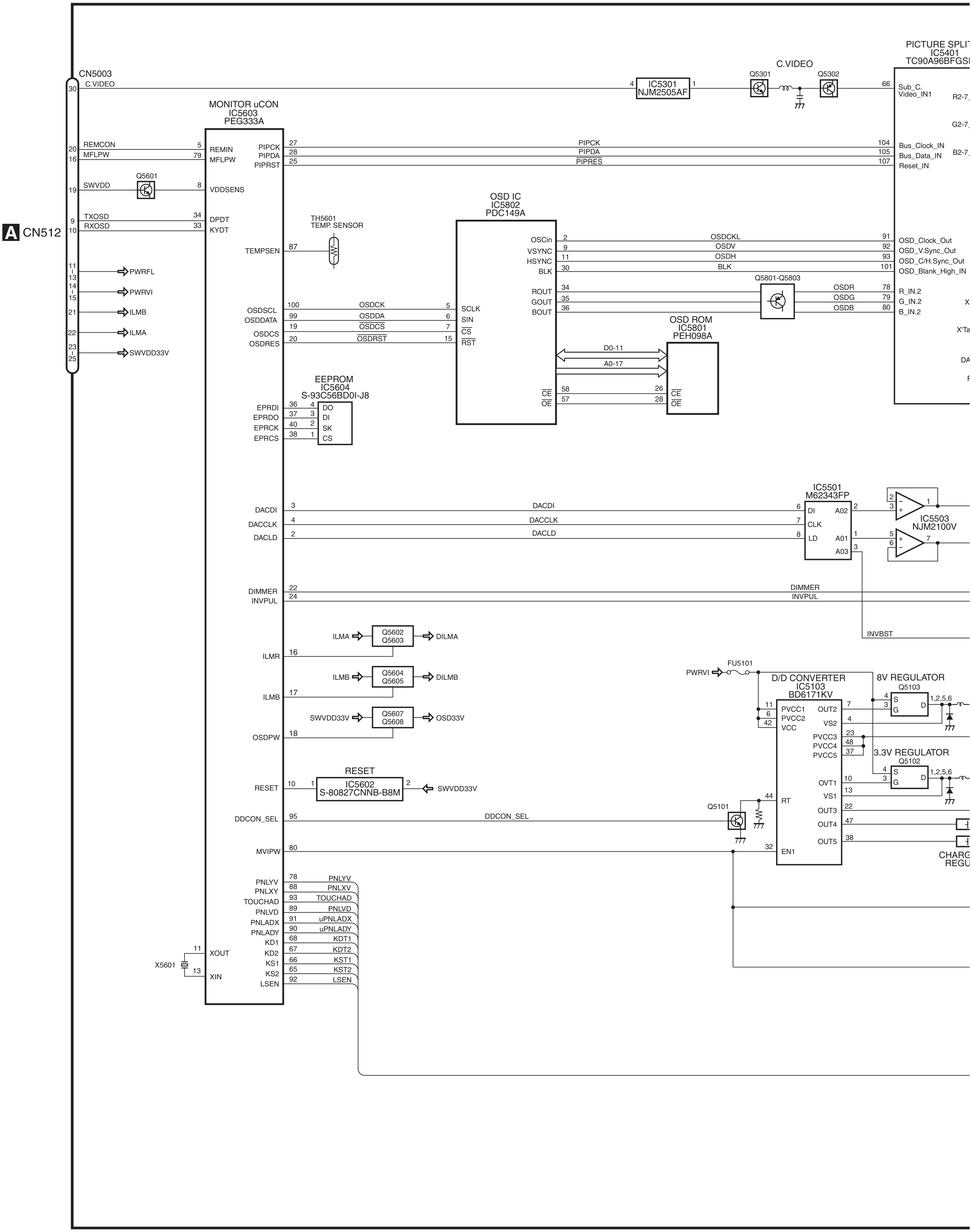
I OPT PCB

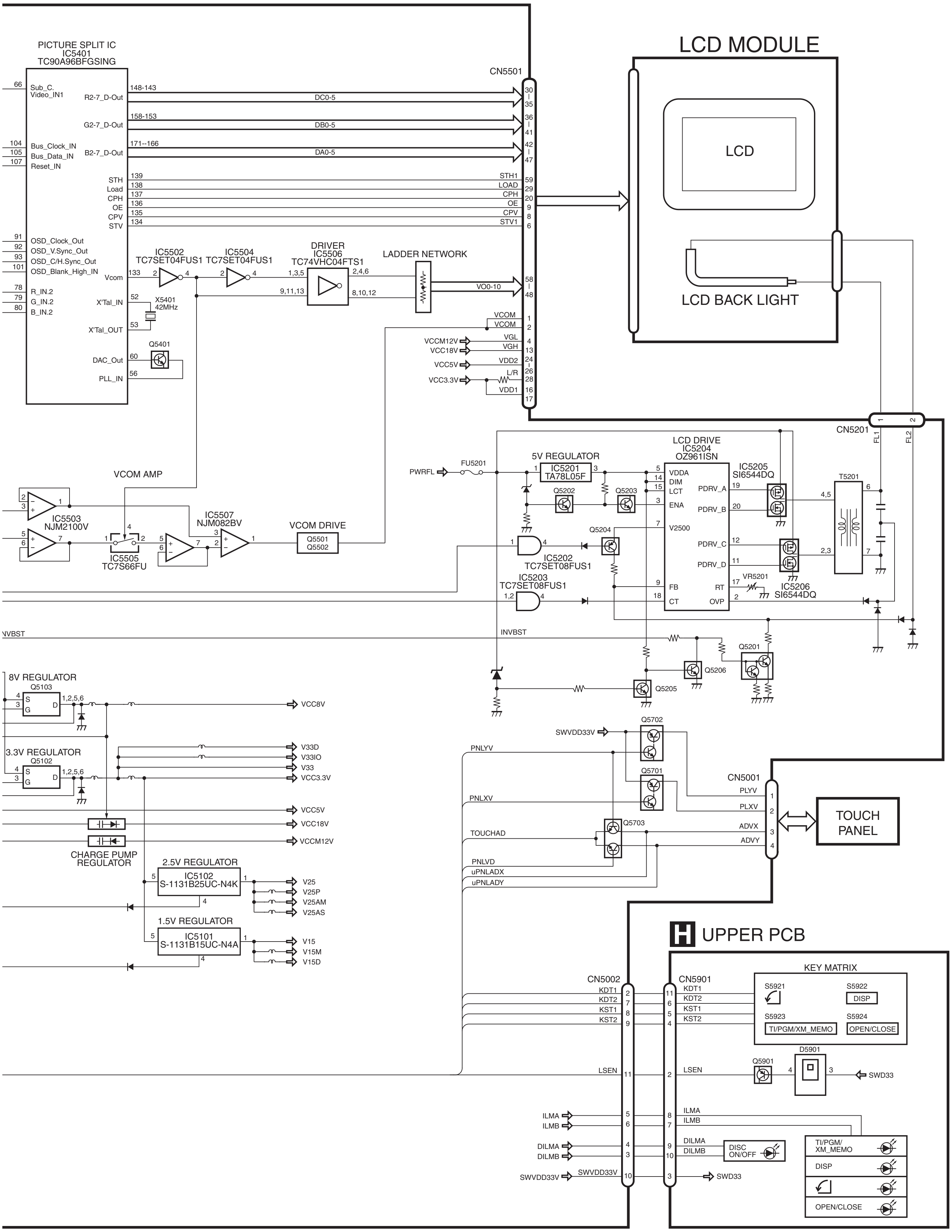

CN4201
CN4202
A CN461
18 BUS+
15 BUS-
13 BUSLI
12 ASENB
BUS+ 1
BUS- 4
BUSLI 6
ASENB 7
IP-BUS
7
6
DPT5
CN4203
5 HSNS
4 OPTOUT
2
4
3
2
DIGITAL OUT
IC4201
TC7SET08FUS1

B KEYBOARD UNIT


CN4001
A CN481
7 KEY0
8 KEY1
S4033
EJECT
S4034
S4035
SOURCE
S4036
S4037
BAND
S4032
ATT&VOLUME
2 RDTA
4 RDTB
1
2
3
4
5
S4031
RESET
11 RESET
15 DSENS
SUB LCD CONTROL
IC4001
LC75836WS
10 LCDCL
12 LCDCE
14 LCDDI
47 CL
46 CE
48 DI
P1/S1
1
SUBILM
Q4041
D4042
ILMA
ILMB
SUB LCD
LCD4001
REMOTE CONTROL
SENSOR
6 REM
2
IC4021
SBX3050-01
9 SWVDD5
1
D4051-D4060
3 ILMA
ILMA
D4071-D4080
5 ILMB
ILMB

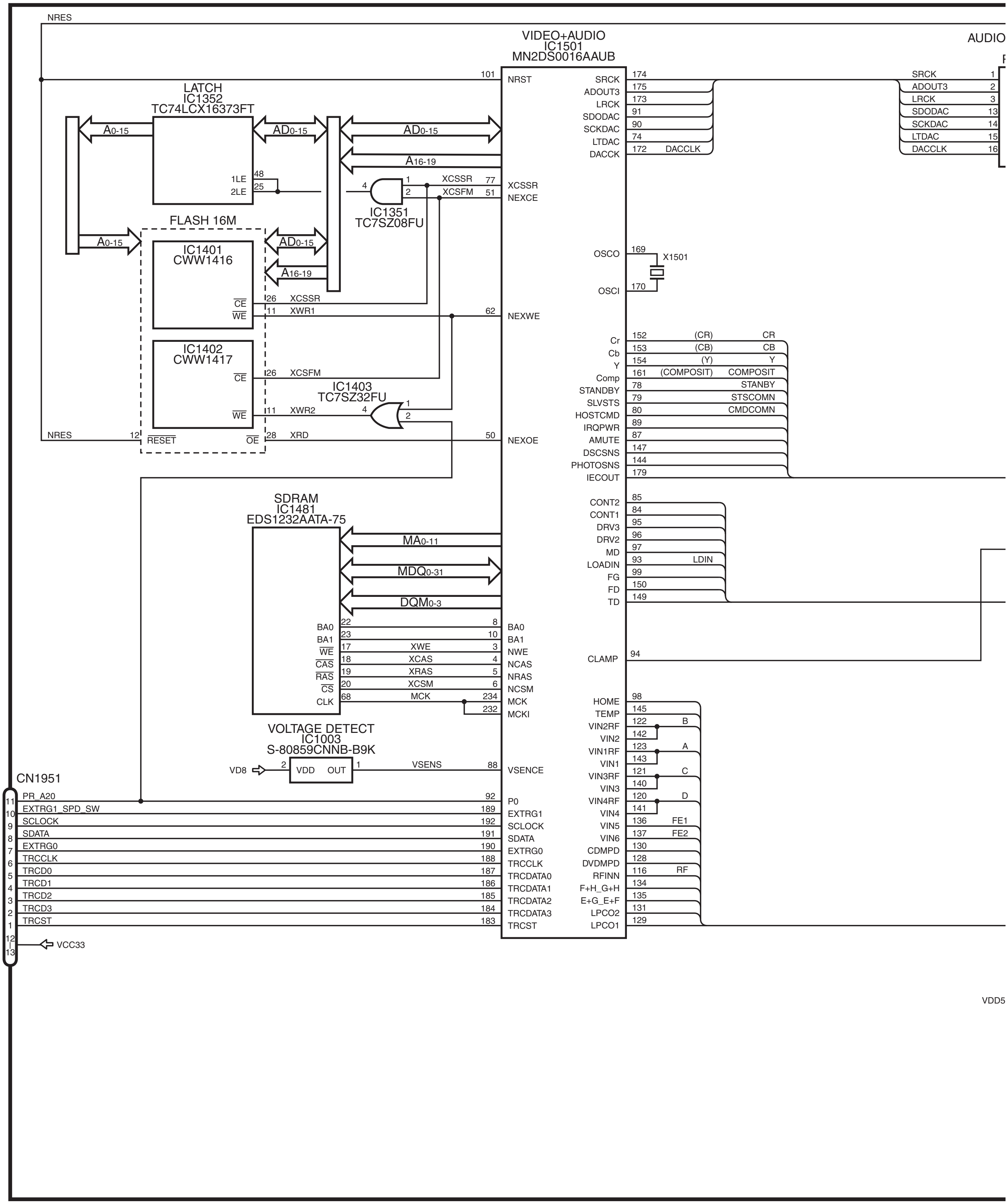
C MONITOR PCB

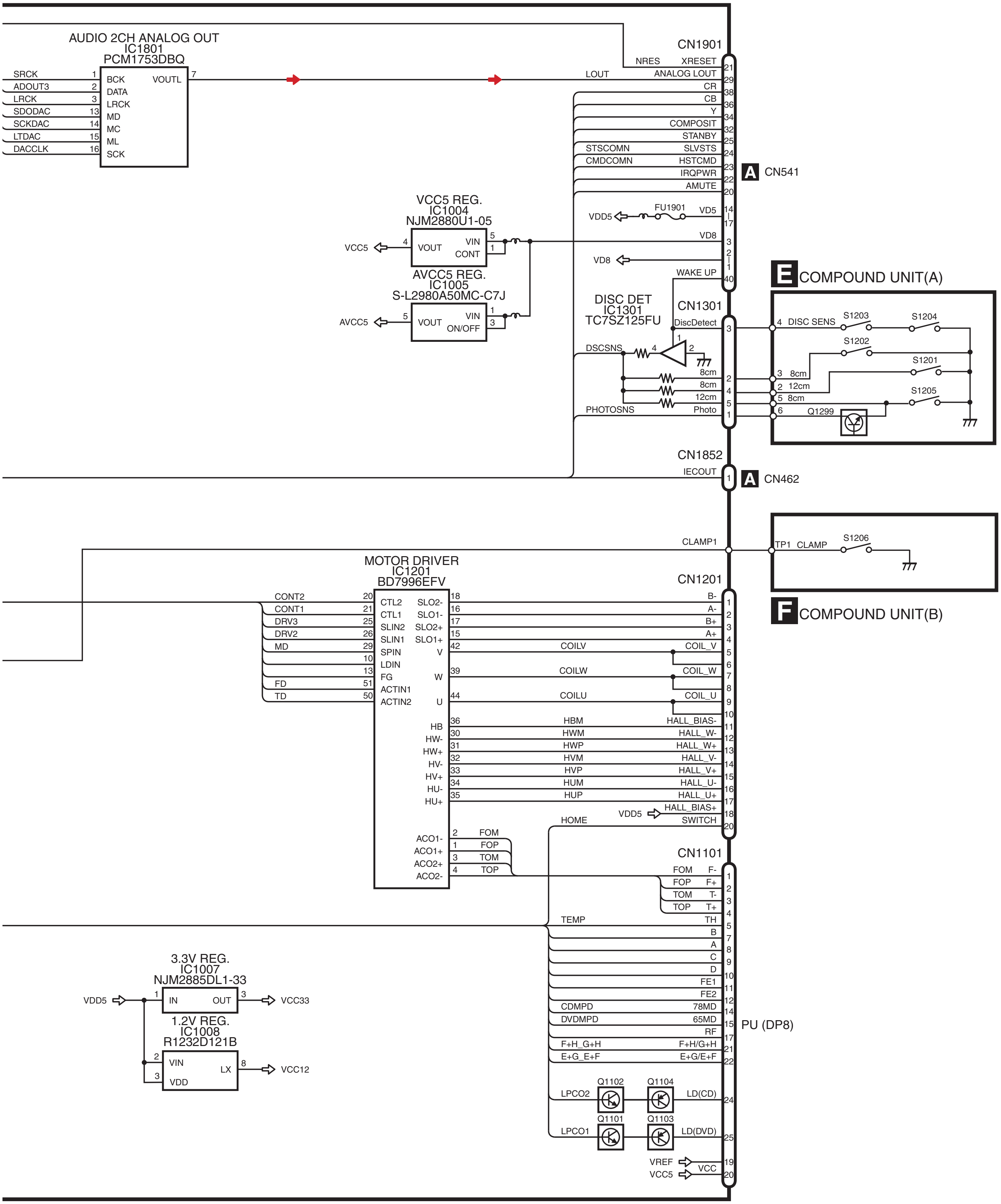

CN5003
C.VIDEO
30
IC5301
NJM2505AF
4
1
C.VIDEO
Q5301
Q5302
66
PICTURE SPLIT
IC5401
TC90A96BFGS
Sub_C.Video_IN1
R2-7
G2-7
B2-7
MONITOR uCON
IC5603
PEG333A
REMCON
MFLPW
20
16
5
79
REMIN
MFLPW
PIPCK
PIPDA
PIPRST
27
28
25
PIPCK
PIPDA
PIPRES
104
105
107
Bus_Clock_IN
Bus_Data_IN
Reset_IN
Q5601
SWVDD
19
8
VDDSENS
OSD IC
IC5802
PDC149A
TXOSD
RXOSD
9
10
34
33
DPDT
KYDT
A CN512
TH5601
TEMP. SENSOR
TEMPSEN
87
OSCin
VSYNC
HSYNC
BLK
2
9
11
30
OSDCKL
OSDV
OSDH
BLK
91
92
93
101
OSD_Clock_Out
OSD_V.Sync_Out
OSD_C/H.Sync_Out
OSD_Blank_High_IN
11 13 PWRFL
14 15 PWRVI
21 ILMB
22 ILMA
23 25 SWVDD33V
Q5801-Q5803
ROUT
GOUT
BOUT
34
35
36
OSDR
OSDG
OSDB
78
79
80
R_IN.2
G_IN.2
B_IN.2
OSDSCL
OSDDATA
OSDCS
OSDRES
100
99
19
20
OSDCK
OSDDA
OSDCS
OSDRST
5
6
7
15
SCLK
SIN
CS
RST
OSD ROM
IC5801
PEH098A
D0-11
A0-17
EEPROM
IC5604
S-93C56BD0I-J8
EPRDI
EPRDO
EPRCK
EPRCS
36 4 DO
37 3 DI
40 2 SK
38 1 CS
CE
OE
58
57
26
28
CE
OE
IC5501
M62343FP
DACDI
DACCLK
DACLD
3
4
2
DACDI
DACCLK
DACLD
6 DI
7 CLK
8 LD
A02
A01
A03
IC5503
NJM2100V
DIMMER
INVPUL
22
24
DIMMER
INVPUL
INVBST
ILMA
Q5602
Q5603
DILMA
ILMR
16
ILMB
Q5604
Q5605
DILMB
ILMB
17
SWVDD33V
Q5607
Q5608
OSD33V
OSDPW
18
PWRVI
FU5101
D/D CONVERTER
IC5103
BD6171KV
8V REGULATOR
Q5103
PVCC1
PVCC2
VCC
OUT2
VS2
PVCC3
PVCC4
PVCC5
3.3V REGULATOR
Q5102
RESET
IC5602
S-80827CNNB-B8M
RESET
10
SWVDD33V
OVT1
VS1
OUT3
OUT4
OUT5
RT
EN1
Q5101
DDCON_SEL
95
DDCON_SEL
MVIPW
80
CHARG
REGU
PNLYV
PNLXY
TOUCHAD
PNLVD
PNLADX
PNLADY
KD1
KD2
KS1
KS2
LSEN
78
88
93
89
91
90
68
67
66
65
92
PNLYV
PNLXV
TOUCHAD
PNLVD
uPNLADX
uPNLADY
KDT1
KDT2
KST1
KST2
LSEN
X5601
11
13
XOUT
XIN



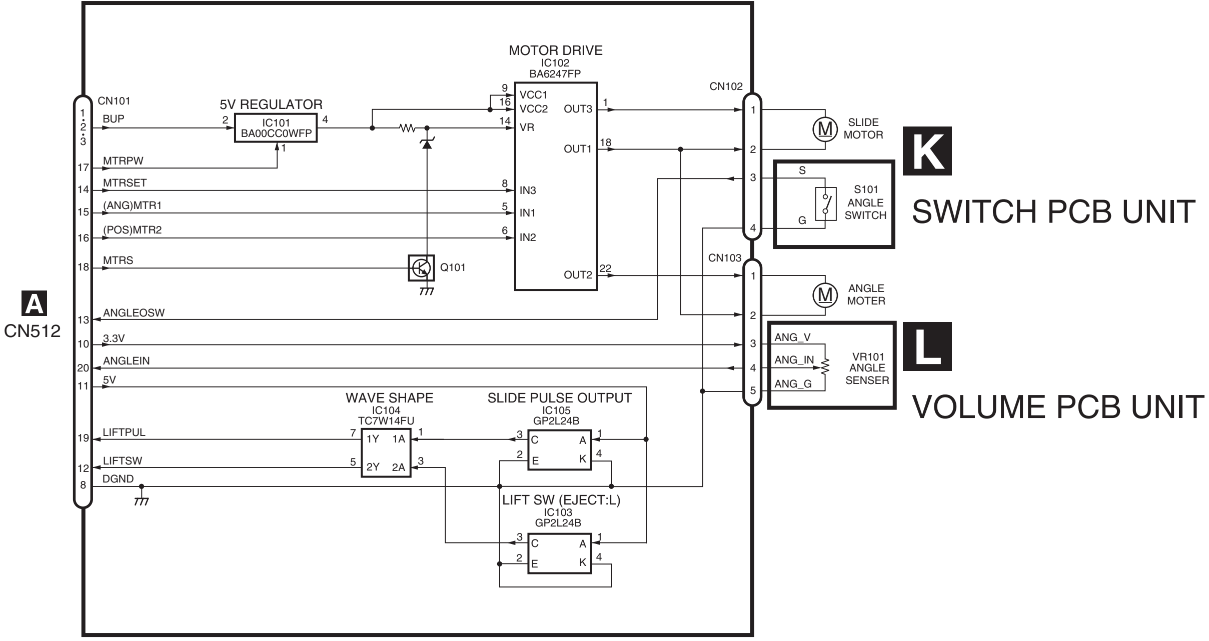
LCD MODULE
LCD
LCD BACK LIGHT
PICTURE SPLIT IC
IC5401
TC90A96BFGSING
Sub_C. Video_IN1
R2-7_D-Out
G2-7_D-Out
B2-7_D-Out
Bus_Clock_IN
Bus_Data_IN
Reset_IN
STH
Load
CPH
OE
CPV
STV
OSD_Clock_Out
OSD_V.Sync_Out
OSD_C/H.Sync_Out
OSD_Blank_High_IN
Vcom
R_IN.2
G_IN.2
B_IN.2
X'Tal_IN
X'Tal_OUT
DAC_Out
PLL_IN
X5401
42MHz
Q5401
CN5501
DC0-5
DB0-5
DA0-5
STH1
LOAD
CPH
OE
CPV
STV1
IC5502
TC7SET04FUS1
IC5504
TC7SET04FUS1
DRIVER
IC5506
TC74VHC04FTS1
LADDER NETWORK
VO0-10
VCOM
VGL
VGH
VDD2
L/R
VDD1
VCCM12V
VCC18V
VCC5V
VCC3.3V
VCOM AMP
IC5503
NJM2100V
IC5505
TC7S66FU
IC5507
NJM082BV
VCOM DRIVE
Q5501
Q5502
INVBST
CN5201
FL1
FL2
PWRFL
FU5201
5V REGULATOR
IC5201
TA78L05F
Q5202
Q5203
Q5204
LCD DRIVE
IC5204
OZ961ISN
VDDA
DIM
LCT
ENA
V2500
FB
CT
PDRV_A
PDRV_B
PDRV_C
PDRV_D
RT
OVP
IC5205
SI6544DQ
IC5206
SI6544DQ
T5201
VR5201
IC5202
TC7SET08FUS1
IC5203
TC7SET08FUS1
Q5201
Q5205
Q5206
8V REGULATOR
Q5103
VCC8V
3.3V REGULATOR
Q5102
V33D
V33IO
V33
VCC3.3V
VCC5V
VCC18V
VCCM12V
CHARGE PUMP REGULATOR
2.5V REGULATOR
IC5102
S-1131B25UC-N4K
V25
V25P
V25AM
V25AS
1.5V REGULATOR
IC5101
S-1131B15UC-N4A
V15
V15M
V15D
SWVDD33V
Q5702
Q5701
Q5703
PNLYV
PNLXV
TOUCHAD
PNLVD
uPNLADX
uPNLADY
CN5001
PLYV
PLXV
ADVX
ADVY
TOUCH PANEL
H UPPER PCB
CN5002
CN5901
KDT1
KDT2
KST1
KST2
LSEN
ILMA
ILMB
DILMA
DILMB
SWVDD33V
SWD33
KEY MATRIX
S5921
S5922
DISP
S5923
TI/PGM/XM_MEMO
S5924
OPEN/CLOSE
Q5901
D5901
DISC ON/OFF
TI/PGM/ XM_MEMO
DISP
OPEN/CLOSE
A
B
C
D
E
F

D DVD CORE UNIT


NRES
VIDEO+AUDIO
IC1501
MN2DS0016AAUB
AUDIO
LATCH
IC1352
TC74LCX16373FT
A0-15
AD0-15
A16-19
1LE
2LE
48
25
XCSSR
XCSFM
IC1351
TC7SZ08FU
FLASH 16M
IC1401
CWW1416
CE
WE
XWR1
IC1402
CWW1417
IC1403
TC7SZ32FU
XWR2
RESET
OE
XRD
NRST
SRCK
ADOUT3
LRCK
SDODAC
SCKDAC
LTDAC
DACCK
DACCLK
XCSSR
NEXCE
OSCO
OSCI
X1501
NEXWE
NEXOE
Cr
Cb
Y
Comp
STANDBY
SLVSTS
HOSTCMD
IRQPWR
AMUTE
DSCSNS
PHOTOSNS
IECOUT
(CR) CR
(CB) CB
(Y) Y
(COMPOSIT) COMPOSIT
STANBY
STSCOMN
CMDCOMN
CONT2
CONT1
DRV3
DRV2
MD
LOADIN
FG
FD
TD
LDIN
CLAMP
SDRAM
IC1481
EDS1232AATA-75
MA0-11
MDQ0-31
DQM0-3
BA0
BA1
WE
CAS
RAS
CS
CLK
XWE
XCAS
XRAS
XCSM
MCK
NWE
NCAS
NRAS
NCSM
MCKI
VOLTAGE DETECT
IC1003
S-80859CNNB-B9K
VD8
VDD
OUT
VSENS
VSENCE
HOME
TEMP
VIN2RF
VIN2
VIN1RF
VIN1
VIN3RF
VIN3
VIN4RF
VIN4
VIN5
VIN6
CDMPD
DVDMPD
RFINN
F+H_G+H
E+G_E+F
LPCO2
LPCO1
B
A
C
D
FE1
FE2
RF
CN1951
DEBUG
PR_A20
EXTRG1_SPD_SW
SCLOCK
SDATA
EXTRG0
TRCCLK
TRCD0
TRCD1
TRCD2
TRCD3
TRCST
P0
EXTRG1
TRCDATA0
TRCDATA1
TRCDATA2
TRCDATA3
VCC33
VDD5


AUDIO 2CH ANALOG OUT
IC1801
PCM1753DBQ
SRCK
ADOUT3
LRCK
SDODAC
SCKDAC
LTDAC
DACCLK
BCK
DATA
LRCK
MD
MC
ML
SCK
VOUTL
LOUT
CN1901
NRES XRESET
ANALOG LOUT
CR
CB
Y
COMPOSIT
STANBY
STSCOMN SLVSTS
CMDCOMN HSTCMD
IRQPWR
AMUTE
FU1901
VDD5
VD5
VD8
WAKE UP
A CN541
VCC5 REG.
IC1004
NJM2880U1-05
VCC5
VOUT
VIN
CONT
AVCC5 REG.
IC1005
S-L2980A50MC-C7J
AVCC5
ON/OFF
E COMPOUND UNIT(A)
DISC DET
IC1301
TC7SZ125FU
CN1301
DiscDetect
DSCSNS
8cm
8cm
12cm
PHOTOSNS
Photo
DISC SENS
S1203
S1204
S1202
S1201
S1205
12cm
8cm
Q1299
CN1852
IECOUT
A CN462
CLAMP1
TP1 CLAMP
S1206
MOTOR DRIVER
IC1201
BD7996EFV
CN1201
CONT2
CONT1
DRV3
DRV2
MD
FD
TD
CTL2
CTL1
SLIN2
SLIN1
SPIN
LDIN
FG
ACTIN1
ACTIN2
SLO2-
SLO1-
SLO2+
SLO1+
V
W
U
HB
HW-
HW+
HV-
HV+
HU-
HU+
ACO1-
ACO1+
ACO2+
ACO2-
B-
A-
B+
A+
COILV COIL_V
COILW COIL_W
COILU COIL_U
HBM HALL_BIAS-
HWM HALL_W-
HWP HALL_W+
HVM HALL_V-
HVP HALL_V+
HUM HALL_U-
HUP HALL_U+
VDD5 HALL_BIAS+
HOME SWITCH
F COMPOUND UNIT(B)
FOM
FOP
TOM
TOP
CN1101
FOM F-
FOP F+
TOM T-
TOP T+
TEMP TH
B
A
C
D
FE1
FE2
CDMPD 78MD
DVDMPD 65MD
RF
F+H_G+H F+H/G+H
E+G_E+F E+G/E+F
Q1102
Q1104
LPCO2
LD(CD)
Q1101
Q1103
LPCO1
LD(DVD)
VREF
VCC5
VCC
PU (DP8)
3.3V REG.
IC1007
NJM2885DL1-33
VDD5
IN
OUT
VCC33
1.2V REG.
IC1008
R1232D121B
VIN
VDD
LX
VCC12

J MAIN PCB UNIT(SERVICE)



MOTOR DRIVE
IC102
BA6247FP
VCC1
VCC2
VR
OUT3
OUT1
OUT2
IN3
IN1
IN2
5V REGULATOR
IC101
BA00CC0WFP
CN101
CN102
CN103
BUP
MTRPW
MTRSET
(ANG)MTR1
(POS)MTR2
MTRS
Q101
A
CN512
ANGLEOSW
3.3V
ANGLEIN
5V
LIFTPUL
LIFTSW
DGND
WAVE SHAPE
IC104
TC7W14FU
1Y
1A
2Y
2A
SLIDE PULSE OUTPUT
IC105
GP2L24B
LIFT SW (EJECT:L)
IC103
GP2L24B
C
E
A
K
SLIDE MOTOR
ANGLE MOTER
M
K
S
G
S101
ANGLE SWITCH
SWITCH PCB UNIT
L
ANG_V
ANG_IN
ANG_G
VR101
ANGLE SENSER
VOLUME PCB UNIT

A

B

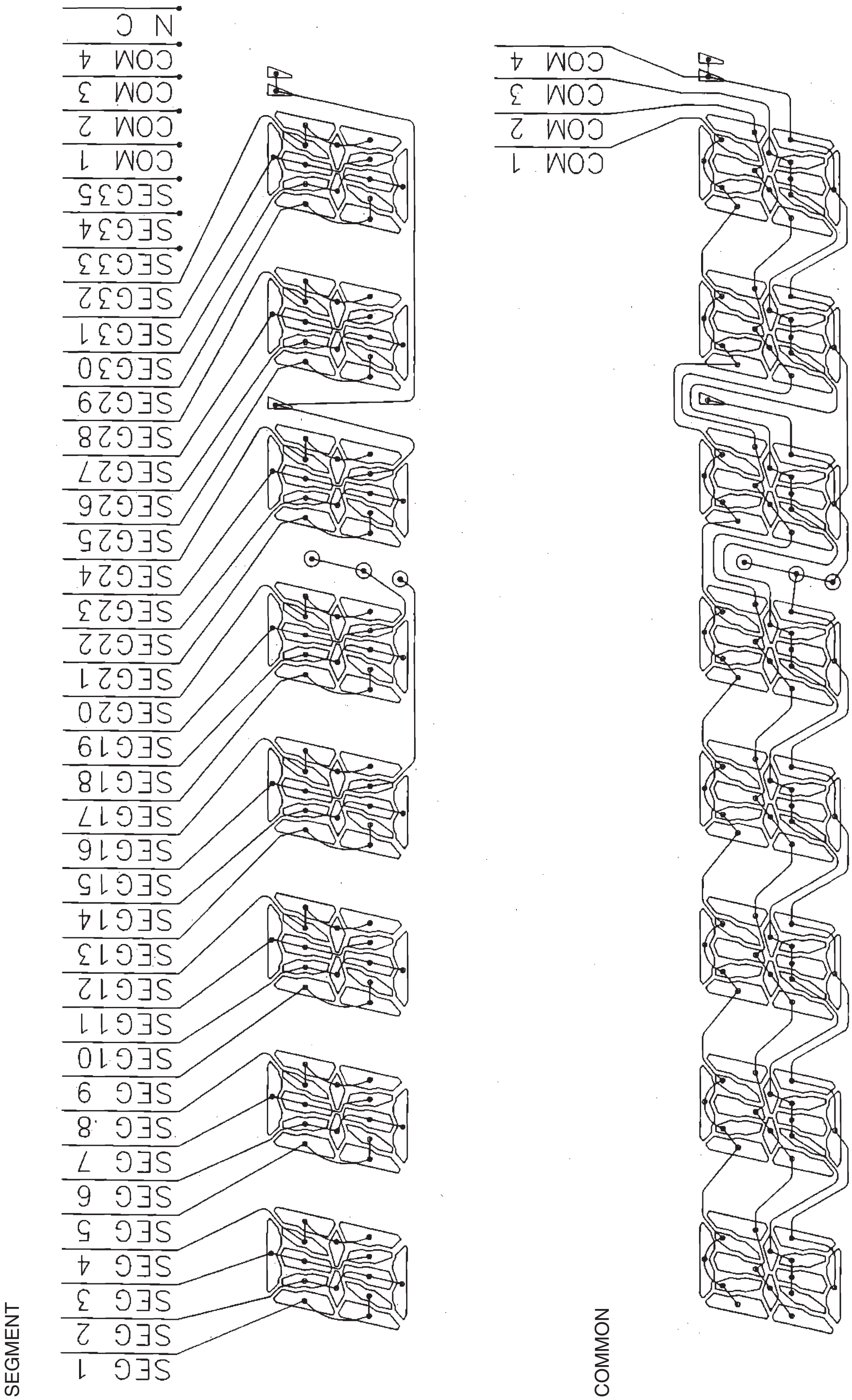
C

D

E

F

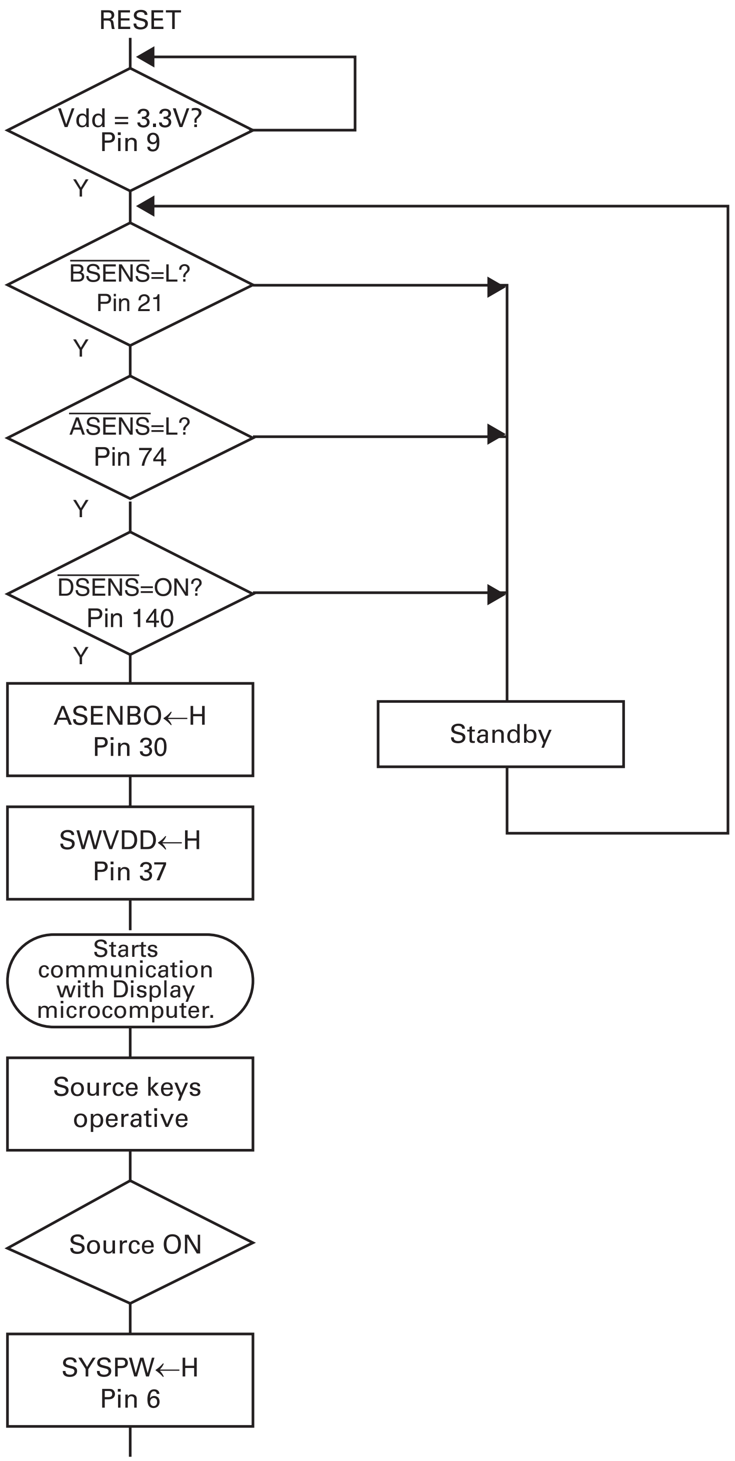
● CAW1946


N C
COM 4
COM 3
COM 2
COM 1
SEG35
SEG34
SEG33
SEG32
SEG31
SEG30
SEG29
SEG28
SEG27
SEG26
SEG25
SEG24
SEG23
SEG22
SEG21
SEG20
SEG19
SEG18
SEG17
SEG16
SEG15
SEG14
SEG13
SEG12
SEG11
SEG10
SEG 9
SEG 8
SEG 7
SEG 6
SEG 5
SEG 4
SEG 3
SEG 2
SEG 1
SEGMENT
COM 4
COM 3
COM 2
COM 1
COMMON

5. DIAGNOSIS

5.1 OPERATIONAL FLOW CHART

DSENS:
0 [v] to 0.85 [v] = OFF
0.85 [v] to 2.45 [v] = ON
2.45 [v] to 3.3 [v] = OFF


RESET
Vdd = 3.3V? Pin 9
Y
BSENS=L? Pin 21
Y
ASENS=L? Pin 74
Y
DSENS=ON? Pin 140
Y
ASENBO←H Pin 30
Standby
SWVDD←H Pin 37
Starts communication with Display microcomputer.
Source keys operative
Source ON
SYSPW←H Pin 6

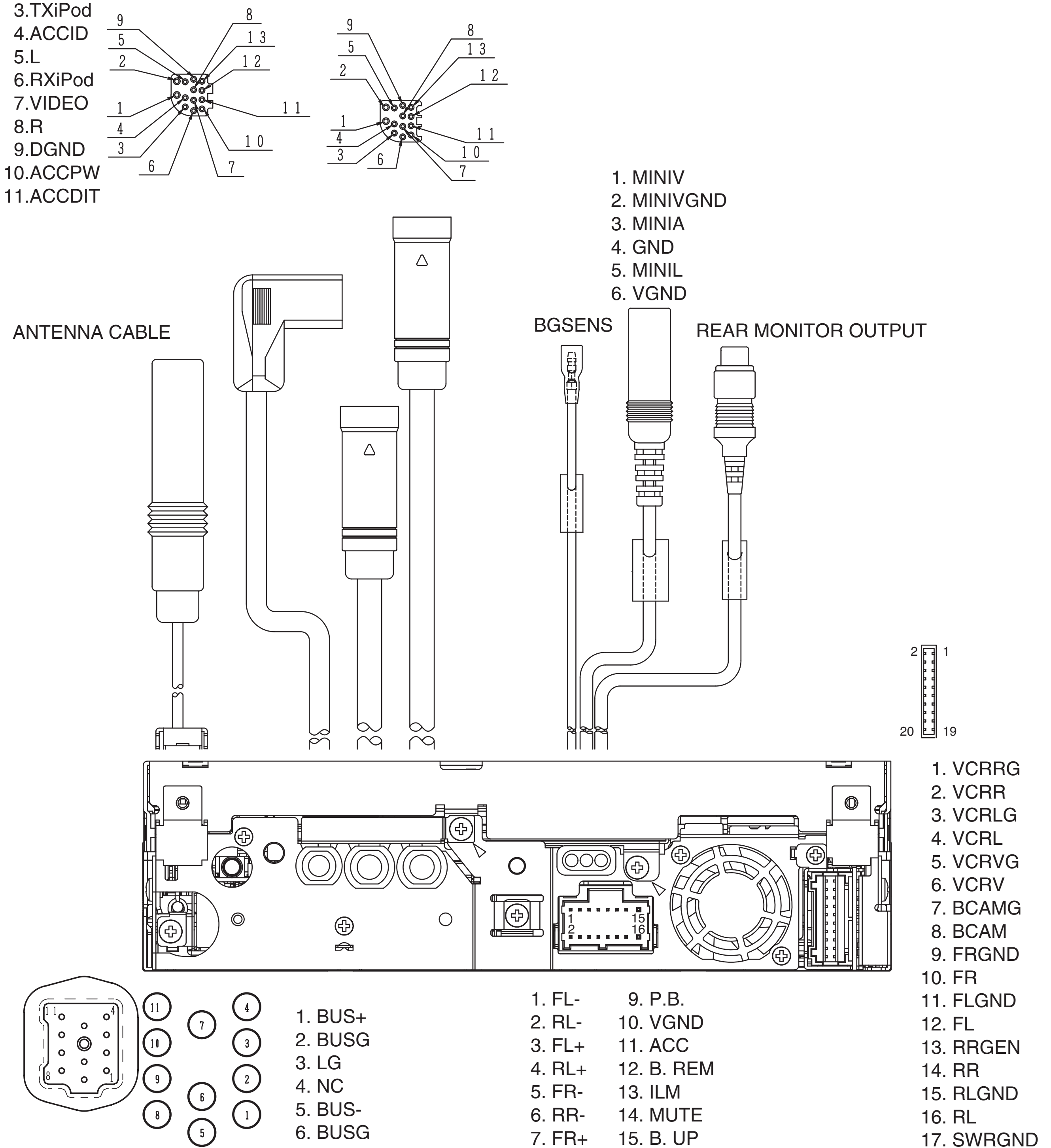
Completes power-on operation.
(After that, proceed to each source operation)

5.2 CONNECTOR FUNCTION DESCRIPTION

1.AVIN-
2.AVIN+
4.VSELIN1
5.VSELIN2
7.AVGND
10.REMIN
11.AVGND

1.PWGND
2.PWPWR
3.TXiPod
4.ACCID
5.L
6.RXiPod
7.VIDEO
8.R
9.DGND
10.ACCPW
11.ACCDIT

1. MINIV
2. MINIVGND
3. MINIA
4. GND
5. MINIL
6. VGND

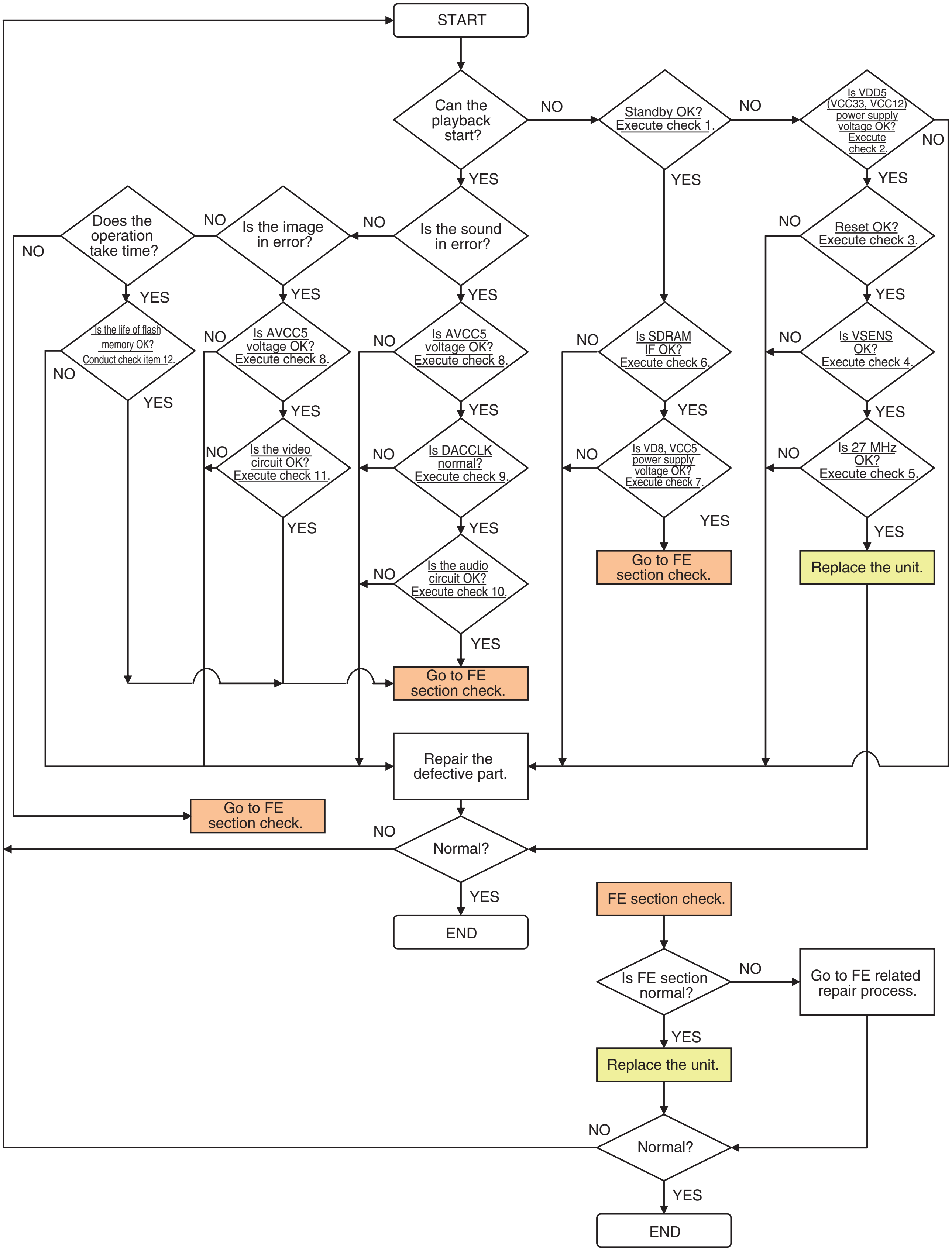

9
5
2
1
4
3
6
7
10
11
12
13
8
9
5
2
1
4
3
6
7
10
11
12
13
8
ANTENNA CABLE
BGSENS
REAR MONITOR OUTPUT
2
1
20
19
1
2
15
16
11
4
8
1
11
10
9
8
7
6
5
4
3
2
1

1. VCRRG
2. VCRR
3. VCRLG
4. VCRL
5. VCRVG
6. VCRV
7. BCAMG
8. BCAM
9. FRGND
10. FR
11. FLGND
12. FL
13. RRGEN
14. RR
15. RLGND
16. RL
17. SWRGND
18. SWR
19. SMLGND
20. SWL

1. BUS+
2. BUSG
3. LG
4. NC
5. BUS-
6. BUSG
7. BUSLI
8. ASENB
9. BUSRI
10. BUSRG
11. BUSLG

1. FL-
2. RL-
3. FL+
4. RL+
5. FR-
6. RR-
7. FR+
8. RR+
9. P.B.
10. VGND
11. ACC
12. B. REM
13. ILM
14. MUTE
15. B. UP
16. GND

5.3 BACK END SECTION FLOW


START
Can the playback start?
NO
Standby OK? Execute check 1.
NO
Is VDD5 (VCC33, VCC12) power supply voltage OK? Execute check 2.
NO
YES
YES
YES
Does the operation take time?
NO
Is the image in error?
NO
Is the sound in error?
NO
Reset OK? Execute check 3.
NO
YES
YES
YES
YES
Is the life of flash memory OK? Conduct check item 12.
NO
Is AVCC5 voltage OK? Execute check 8.
NO
Is AVCC5 voltage OK? Execute check 8.
NO
Is SDRAM IF OK? Execute check 6.
NO
Is VSENS OK? Execute check 4.
NO
YES
YES
YES
YES
YES
Is the video circuit OK? Execute check 11.
NO
Is DACCLK normal? Execute check 9.
NO
Is VD8, VCC5 power supply voltage OK? Execute check 7.
NO
Is 27 MHz OK? Execute check 5.
NO
YES
YES
YES
YES
Go to FE section check.
Replace the unit.
Is the audio circuit OK? Execute check 10.
NO
YES
Go to FE section check.
Repair the defective part.
Go to FE section check.
Normal?
NO
YES
END
FE section check.
Is FE section normal?
NO
Go to FE related repair process.
YES
Replace the unit.
Normal?
NO
YES
END

Check 1: Standby OK?

<Check> Check the voltage at the “STANBY” test point while the power is on.
Use the “DGND1” test point at the reference.

NO.	Check point	Module No.	Specification value	Unit
1	STANBY-DGND1	ALL	VCC33 V- 0.6 V or more	V

Side A

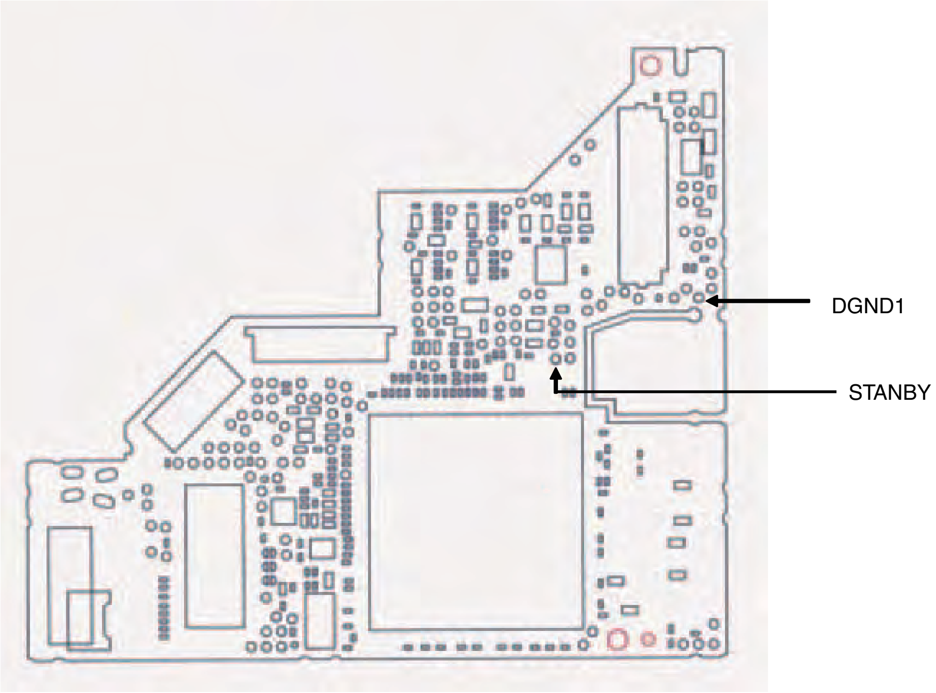


Fig 1.1: STANBY check point

Check 2: Is VDD5 (VCC33, VCC12) power supply voltage OK?

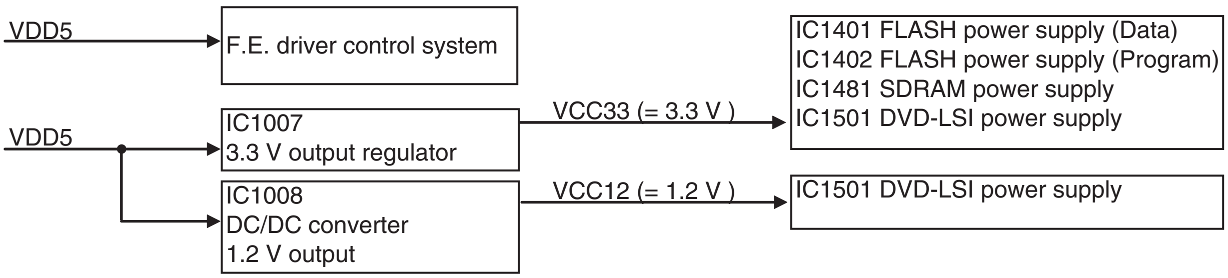

VDD5
F.E. driver control system
VDD5
IC1007
3.3 V output regulator
IC1008
DC/DC converter
1.2 V output
VCC33 (= 3.3 V)
VCC12 (= 1.2 V)
IC1401 FLASH power supply (Data)
IC1402 FLASH power supply (Program)
IC1481 SDRAM power supply
IC1501 DVD-LSI power supply
IC1501 DVD-LSI power supply

Fig 2.1: Power supply configuration

<Check> Check the voltage at the “VDD5_3, VCC33_3 and VCC12_1” test point while the power is on.
Use the “DGND1” test point at the reference.

NO.	Check point	Module No.	Specification value	Unit
1	VDD5_3 - DGND1	ALL	5.0 ± 0.4	V
2	VCC33_3 - DGND1	ALL	3.3 ± 0.15	V
3	VCC12_1 - DGND1	ALL	1.2 ± 0.12	V

Side A

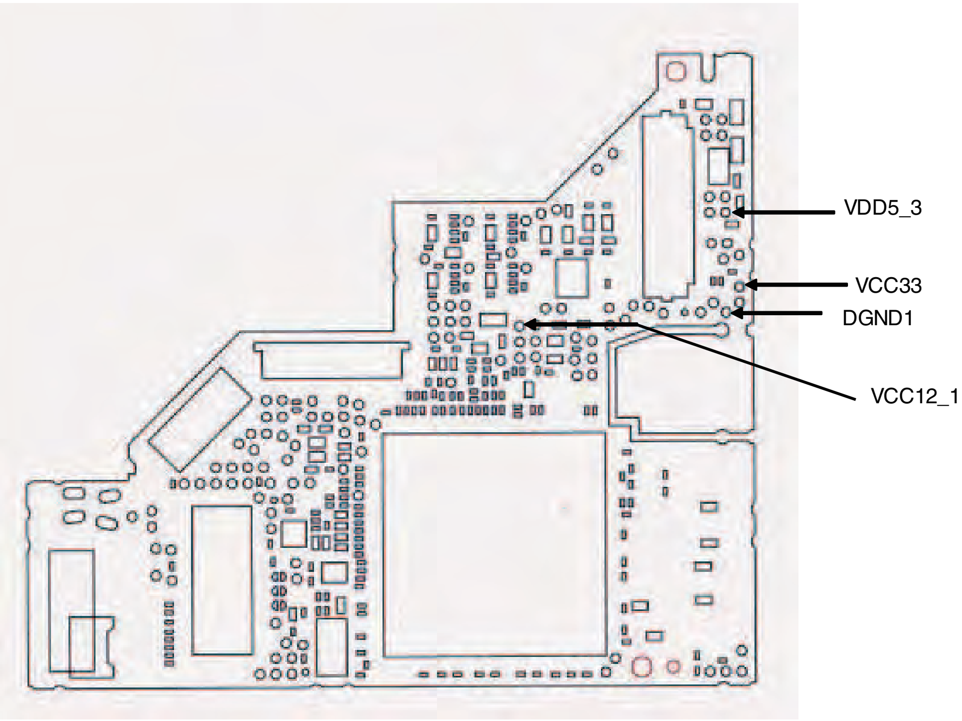

VDD5_3
VCC33
DGND1
VCC12_1

Fig 2.2: VDD5, VCC33, VCC12 voltage check points

Check 3: Reset OK?

<Check> Check the voltage at the "XRES" test point while the power is on.
Use the "DGND1" test point at the reference.

NO.	Check point	Module No.	Specification value	Unit
1	XRES-DGND1	ALL	VCC33 × 0.7 or more	V

Side A

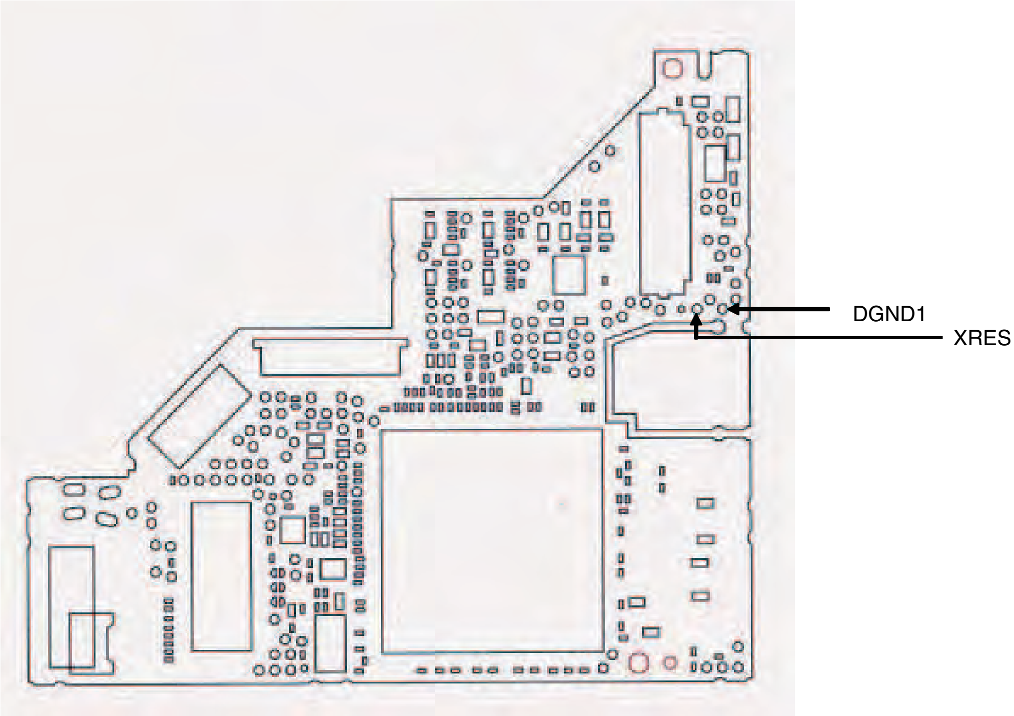


Fig 3.1: RESET check point

Check 4: Is VSENS OK?

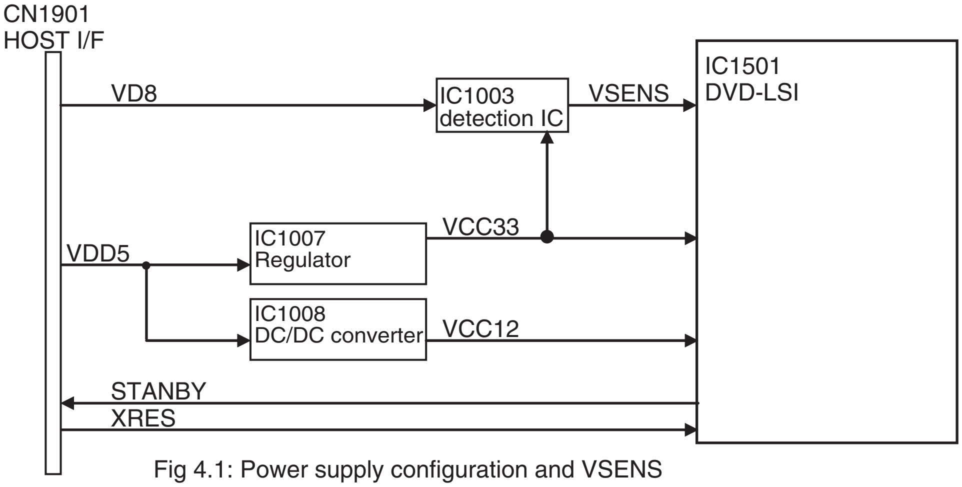

CN1901
HOST I/F
VD8
IC1003
detection IC
VSENS
IC1501
DVD-LSI
VDD5
IC1007
Regulator
VCC33
IC1008
DC/DC converter
VCC12
STANBY
XRES

Fig 4.1: Power supply configuration and VSENS

<Check> Check the voltage at the “VSENS” test point while the power is on.
Use the “DGND1” test point at the reference.

NO.	Check point	Module No.	Specification value	Unit
1	VSENS - DGND1	ALL	VCC33 × 0.7 or more	V

Side A

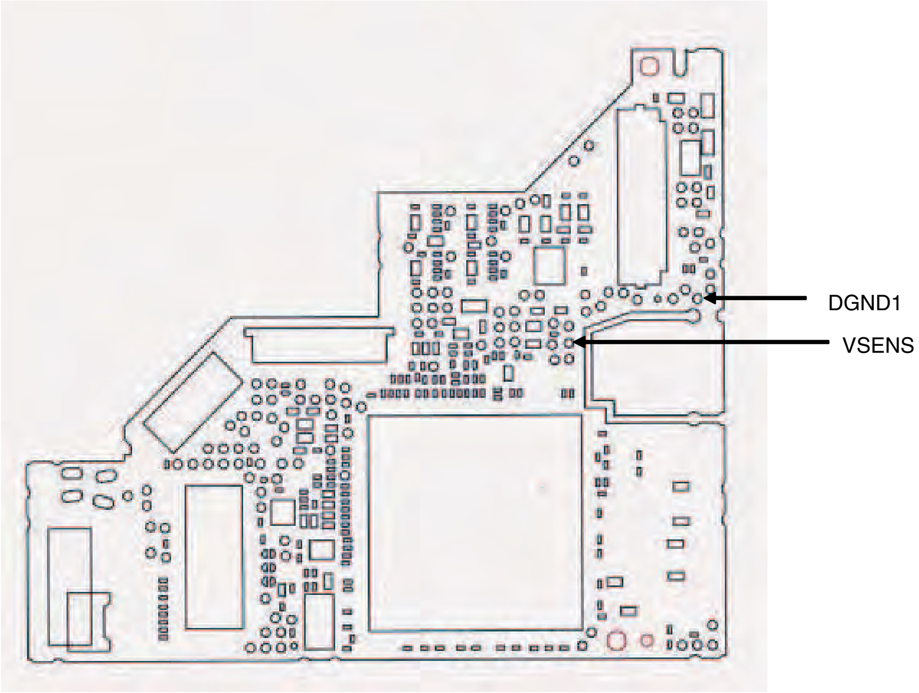

DGND1
VSENS

Fig 4.2: VSENS check point

Check 5: 27 MHz Normal?

<Outline> Each clock is created inside the IC1501 using the 27 MHz master crystal oscillator (X1501).

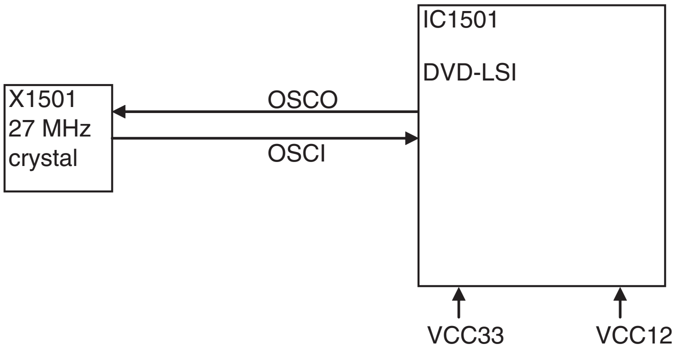

IC1501
DVD-LSI
X1501
27 MHz
crystal
OSCO
OSCI
VCC33
VCC12

Fig 5.1: Clock configuration

<Check method> Turn the power on, and check with DGND being the reference.
In case of NG, check the applicable line, periphery of IC1501,
soldering of the peripheral components and defective components.

NO.	Check point	Module No.	Specification value	Unit
2	IC1501 169pin	ALL	27 MHz ± 50 ppm	ppm

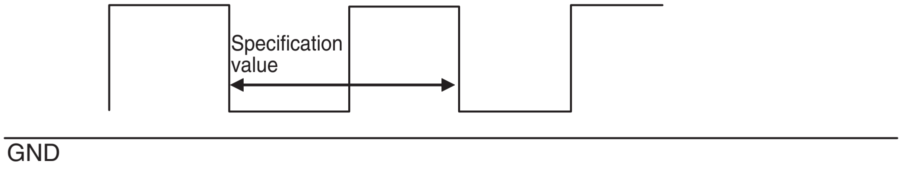

Specification
value
GND

Fig 5.2: Clock specification value

Side A

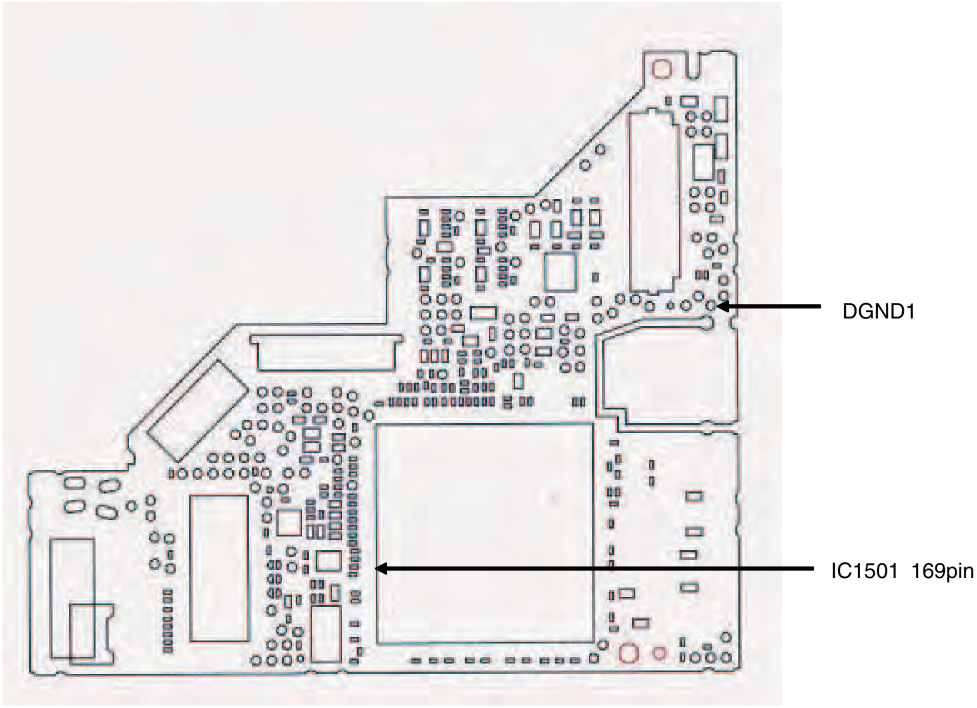

DGND1
IC1501 169pin

Fig 5.3: 27 MHz check point

Check 6: Is SDRAM I/F OK?

<Outline> In order to secure the MPEG stream data as the buffer,
the capacity of communication I/F SDRAM between the LSI and the memory is 128Mbit.
Be careful as XCSM, XWE, XCAS, XRAS and XSCM of IC1481 are called differently in IC1501,
namely NCSM, NWE, NCAS, NRAS, NCSM.

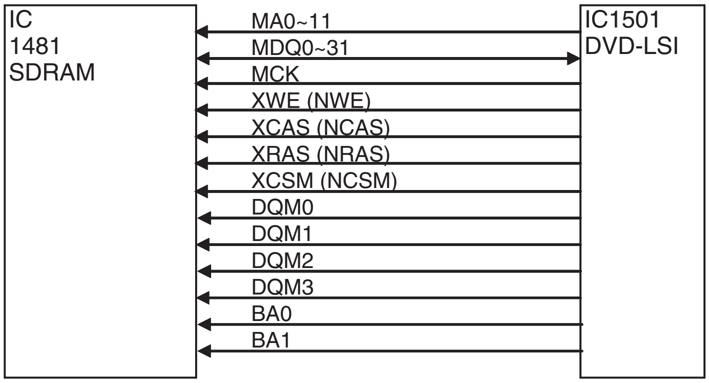
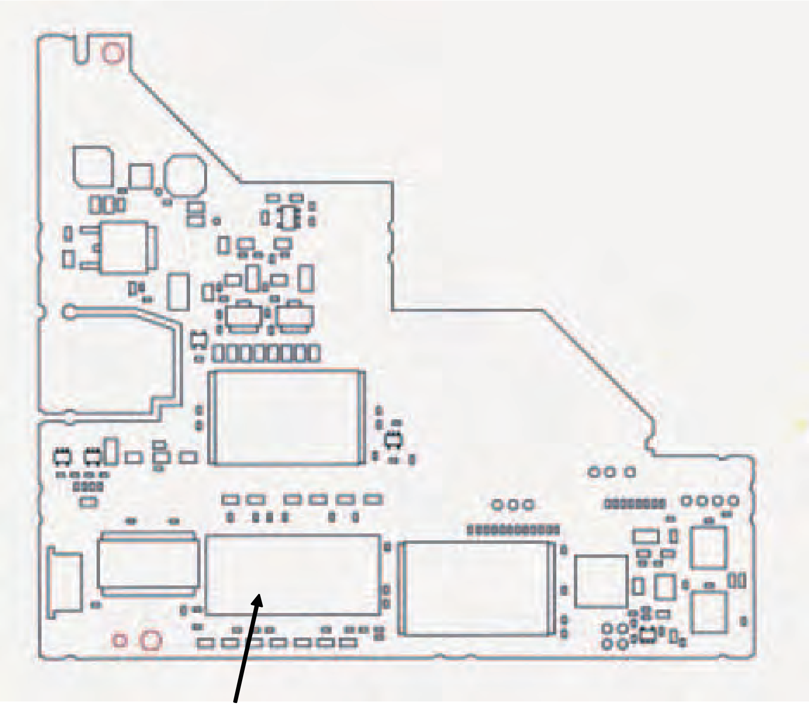

IC
1481
SDRAM
IC1501
DVD-LSI
MA0~11
MDQ0~31
MCK
XWE (NWE)
XCAS (NCAS)
XRAS (NRAS)
XCSM (NCSM)
DQM0
DQM1
DQM2
DQM3
BA0
BA1

Fig 6.1: SDRAM I/F

<Check> Check the conductivity at “check point 1” and “check point 2” without power.
In case of NG, check the soldering and defective components throughout the “output → input” of the applicable section.

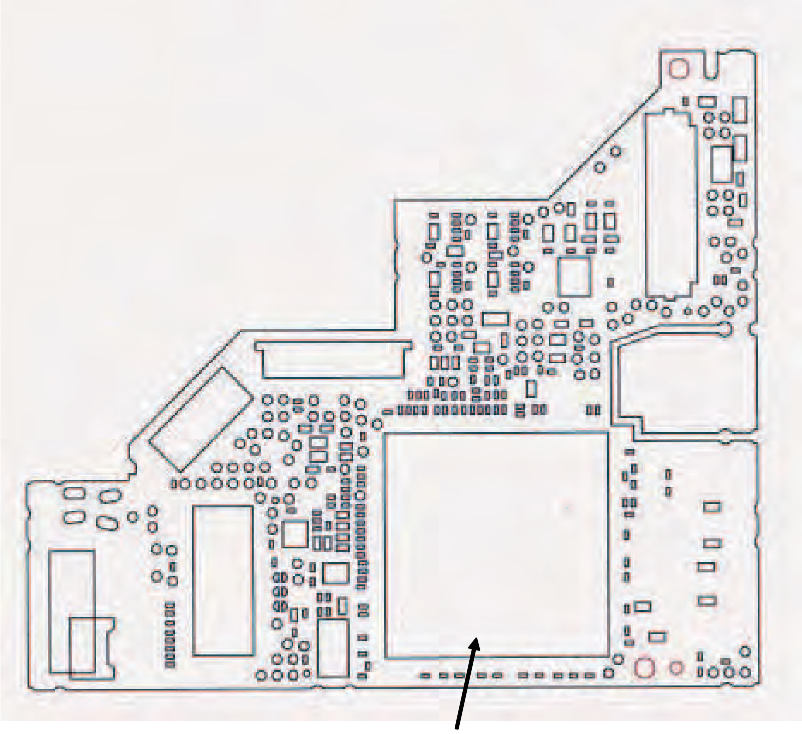
NO.	Signal name	Check point 1	Check point 2	Specification value
1	MA0	IC1481 25pin	IC1501 16pin	56 Ω ± 5 %
2	MA1	IC1481 26pin	IC1501 18pin	56 Ω ± 5 %
3	MA2	IC1481 27pin	IC1501 20pin	56 Ω ± 5 %
4	MA3	IC1481 60pin	IC1501 22pin	56 Ω ± 5 %
5	MA4	IC1481 61pin	IC1501 21pin	56 Ω ± 5 %
6	MA5	IC1481 62pin	IC1501 19pin	56 Ω ± 5 %
7	MA6	IC1481 63pin	IC1501 17pin	56 Ω ± 5 %
8	MA7	IC1481 64pin	IC1501 15pin	56 Ω ± 5 %
9	MA8	IC1481 65pin	IC1501 11pin	56 Ω ± 5 %
10	MA9	IC1481 66pin	IC1501 9pin	56 Ω ± 5 %
11	MA10	IC1481 24pin	IC1501 14pin	56 Ω ± 5 %
12	MA11	IC1481 21pin	IC1501 7pin	56 Ω ± 5 %
13	MDQ0	IC1481 2pin	IC1501 237pin	56 Ω ± 5 %
14	MDQ1	IC1481 4pin	IC1501 239pin	56 Ω ± 5 %
15	MDQ2	IC1481 5pin	IC1501 241pin	56 Ω ± 5 %
16	MDQ3	IC1481 7pin	IC1501 243pin	56 Ω ± 5 %
17	MDQ4	IC1481 8pin	IC1501 248pin	56 Ω ± 5 %
18	MDQ5	IC1481 10pin	IC1501 250pin	56 Ω ± 5 %
19	MDQ6	IC1481 11pin	IC1501 252pin	56 Ω ± 5 %
20	MDQ7	IC1481 13pin	IC1501 254pin	56 Ω ± 5 %
21	MDQ8	IC1481 74pin	IC1501 253pin	56 Ω ± 5 %
22	MDQ9	IC1481 76pin	IC1501 251pin	56 Ω ± 5 %
23	MDQ10	IC1481 77pin	IC1501 249pin	56 Ω ± 5 %
24	MDQ11	IC1481 79pin	IC1501 244pin	56 Ω ± 5 %
25	MDQ12	IC1481 80pin	IC1501 242pin	56 Ω ± 5 %
26	MDQ13	IC1481 82pin	IC1501 240pin	56 Ω ± 5 %
27	MDQ14	IC1481 83pin	IC1501 238pin	56 Ω ± 5 %
28	MDQ15	IC1481 85pin	IC1501 236pin	56 Ω ± 5 %
29	MDQ16	IC1481 31pin	IC1501 29pin	56 Ω ± 5 %
30	MDQ17	IC1481 33pin	IC1501 31pin	56 Ω ± 5 %
31	MDQ18	IC1481 34pin	IC1501 33pin	56 Ω ± 5 %
32	MDQ19	IC1481 36pin	IC1501 37pin	56 Ω ± 5 %
33	MDQ20	IC1481 37pin	IC1501 39pin	56 Ω ± 5 %
34	MDQ21	IC1481 39pin	IC1501 41pin	56 Ω ± 5 %
35	MDQ22	IC1481 40pin	IC1501 43pin	56 Ω ± 5 %
36	MDQ23	IC1481 42pin	IC1501 45pin	56 Ω ± 5 %
37	MDQ24	IC1481 45pin	IC1501 44pin	56 Ω ± 5 %
38	MDQ25	IC1481 47pin	IC1501 42pin	56 Ω ± 5 %
39	MDQ26	IC1481 48pin	IC1501 40pin	56 Ω ± 5 %
40	MDQ27	IC1481 50pin	IC1501 38pin	56 Ω ± 5 %
41	MDQ28	IC1481 51pin	IC1501 34pin	56 Ω ± 5 %
42	MDQ29	IC1481 53pin	IC1501 32pin	56 Ω ± 5 %
43	MDQ30	IC1481 54pin	IC1501 30pin	56 Ω ± 5 %
44	MDQ31	IC1481 56pin	IC1501 28pin	56 Ω ± 5 %
45	MCK	IC1481 68pin	IC1501 234pin	0.17 Ω ± or lower
46	XWE	IC1481 17pin	IC1501 3pin	56 Ω ± 5 %
47	XCAS	IC1481 18pin	IC1501 4pin	56 Ω ± 5 %
48	XRAS	IC1481 19pin	IC1501 5pin	56 Ω ± 5 %
49	XCSM	IC1481 20pin	IC1501 6pin	56 Ω ± 5 %
50	DQM0	IC1481 16pin	IC1501 255pin	56 Ω ± 5 %
51	DQM1	IC1481 71pin	IC1501 256pin	56 Ω ± 5 %
52	DQM2	IC1481 28pin	IC1501 26pin	56 Ω ± 5 %
53	DQM3	IC1481 59pin	IC1501 27pin	56 Ω ± 5 %
54	BA0	IC1481 22pin	IC1501 8pin	56 Ω ± 5 %
55	BA1	IC1481 23pin	IC1501 10pin	56 Ω ± 5 %

Side B



Check point 1 (IC1481)

Side A



Check point 2 (IC1501)

Fig 6.2: SDRAM I/F check point

Check 7: Is VD8, VCC5 power supply voltage OK?

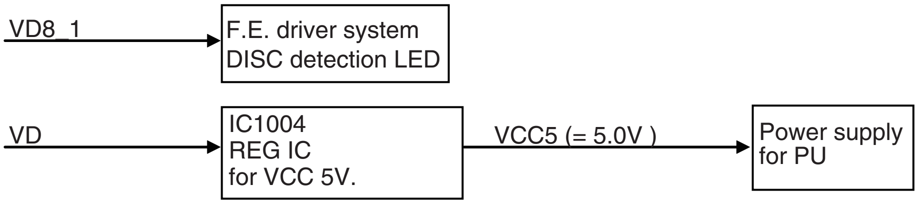

VD8_1
F.E. driver system
DISC detection LED
VD
IC1004
REG IC
for VCC 5V.
VCC5 (= 5.0V)
Power supply
for PU

Fig 7.1: Power supply configuration

<Check> Check the voltage at the “VD8_1, VD and VCC5_1” test point while the power is on.
Use the “PGND3 and AGND1” test point at the reference.

NO.	Check point	Module No.	Specification value	Unit
1	VD8_1 - PGND3	ALL	8.0 ± 0.4	V
2	VD - PGND3	ALL	8.0 ± 0.4	V
3	VCC5_1- AGND1	ALL	5.0 ± 0.1	V

Side A

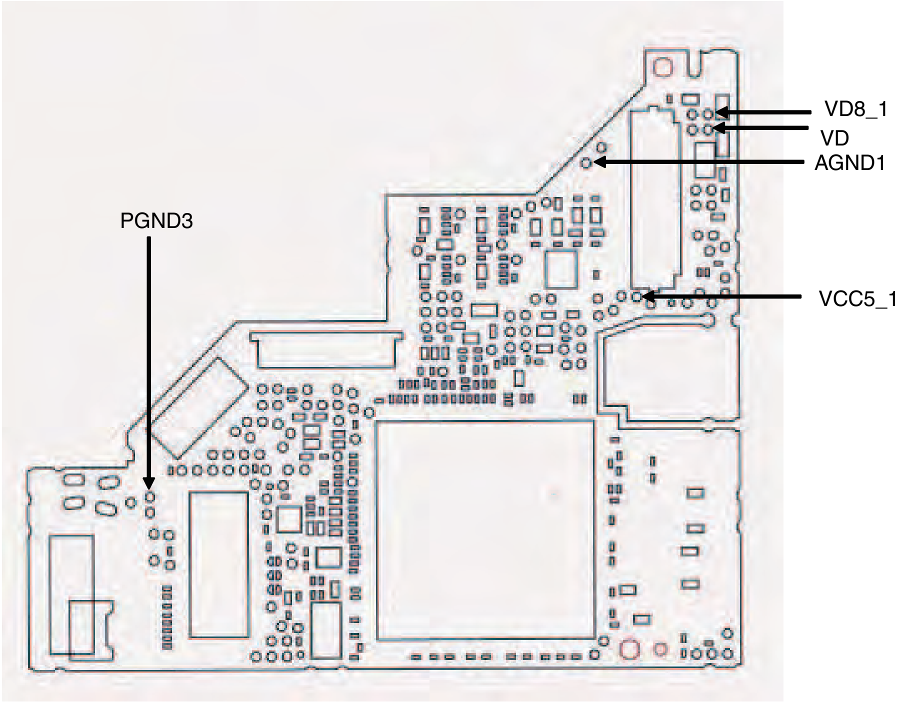

VD8_1
VD
AGND1
PGND3
VCC5_1

Fig 7.2: VD8, VCC5 voltage check points

Check 8: Is AVCC5 voltage OK?

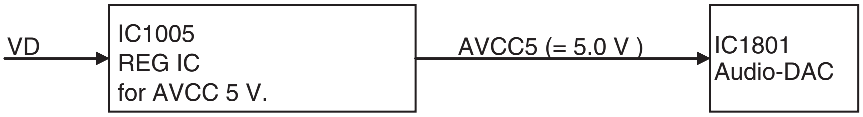

VD
IC1005
REG IC
for AVCC 5 V.
AVCC5 (= 5.0 V)
IC1801
Audio-DAC

Fig 8.1: Power supply configuration

<Check> Playback DVD-REF-A1 TITLE 1 and check the voltage at the stylus.
Check with PGND and GNDAU being the reference.

NO.	Check point	Module No.	Specification value	Unit
1	VD - PGND_3	ALL	8.0 ± 0.4	V
2	AVCC5 - GNDAU1	ALL	5.0 ± 0.1	V

Side A

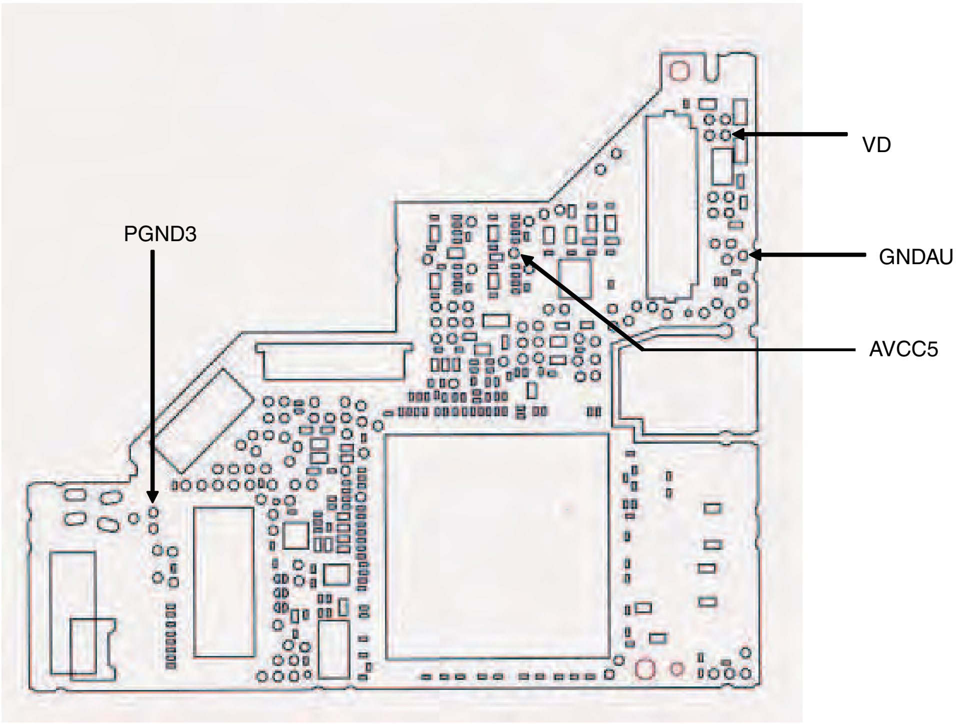

VD
PGND3
GNDAU
AVCC5

Fig 8.2: VD8, AVCC5 voltage check points

Check 9: Is DACCLK normal?

<Outline> DACCLK for Audio-DAC is created by IC1501 using the 27 MHz master crystal oscillator (X1501).

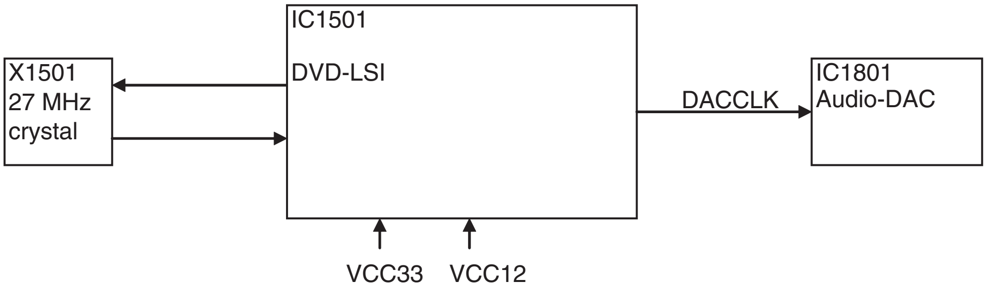

X1501
27 MHz
crystal
IC1501
DVD-LSI
DACCLK
IC1801
Audio-DAC
VCC33
VCC12

Fig 9.1: Clock configuration

<Check method>
DVD: DVD-REF-A1 TITLE 1
CD: Playback a normal CDDA.
Common to all DVD-V compatible modules.
Check with DGND being the reference.
In case of NG, check the applicable line, the periphery of IC1501, soldering of the peripheral components and defective components.

NO.	Check point 1 (stylus)	Media	Specification value 1	Specification value 2	Specification value 3
1	DACCK	DVD	2.0 V~VCC33 V	DGND~0.8 V	36.8640 MHz±300 ppm
2	DACCK	CD	2.0 V~VCC33 V	DGND~0.8 V	33.8688 MHz±300 ppm

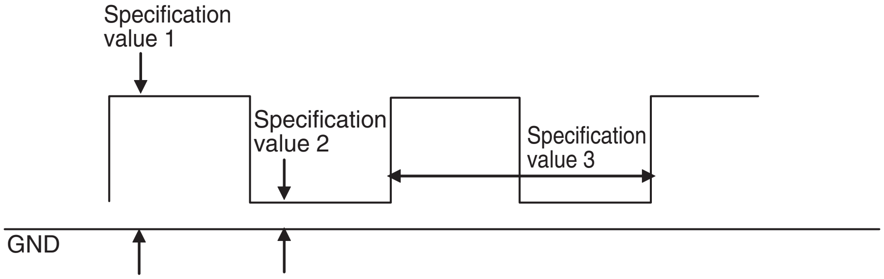
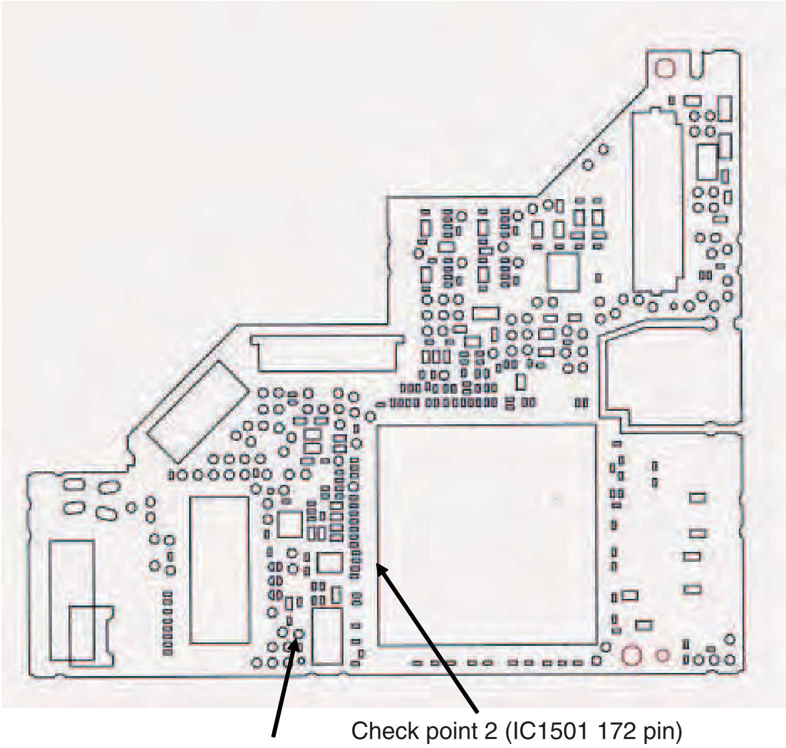

Specification
value 1
Specification
value 2
Specification
value 3
GND

Fig 9.2: Clock specification value

Side A



Check point 2 (IC1501 172 pin)

Check point 1 (stylus)

Fig 9.3: 27 MHz, DACCLK check point

Check 10: Is the audio circuit OK?

<Outline> The serial 3 lines digital output + DACCLK, output from DVD-LSI (IC1501), are converted to analog audio signal at Audio-DAC (IC1801) and are output from the HOST I/F (CN1901).
Simultaneously, the analog MUTE signal is also output from DVD-LSI (IC1501) via the HOST I/F.
The digital audio signal (IECOUT), output from DVD-LSI (IC1501), is output via CN1852.

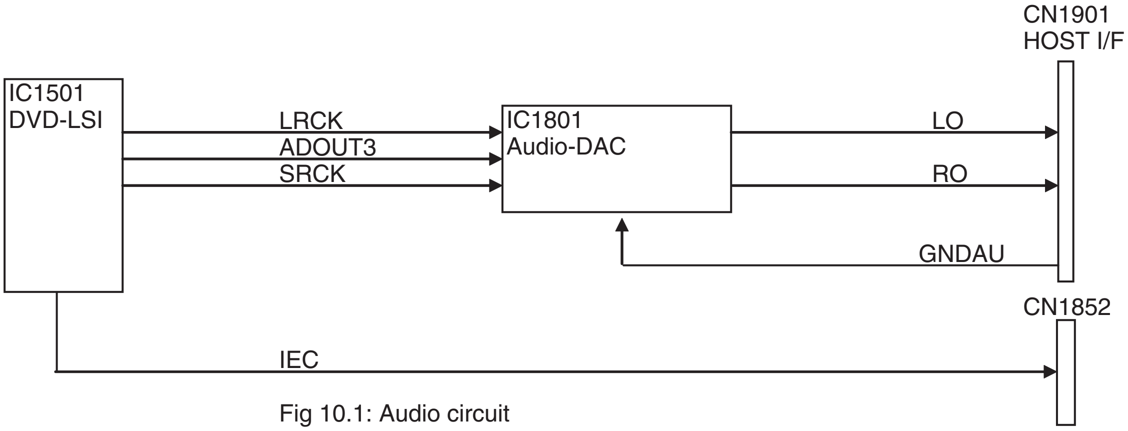

CN1901
HOST I/F
IC1501
DVD-LSI
LRCK
ADOUT3
SRCK
IC1801
Audio-DAC
LO
RO
GNDAU
CN1852
IEC

Fig 10.1: Audio circuit

<Check method> Playback DVD-REF-A1 TITLE 2 CHAPTER 1 (48 k/16 bit 1 kHz 0 dB),
and check with DGND being the reference.
In case of NG, check the applicable line, periphery of major components as described in the above drawing, soldering of the peripheral components and defective components.

NO.	Check point 1 (stylus)	Specification value 1	Specification value 2	Reference waveform
1	ADOUT3	VCC33 V-0.6 V or higher	0.4 V or lower	Waveform 1
2	SRCK	VCC33 V-0.6 V or higher	0.4 V or lower	Waveform 2
3	LRCK	VCC33 V-0.6 V or higher	0.4 V or lower	Waveform 3

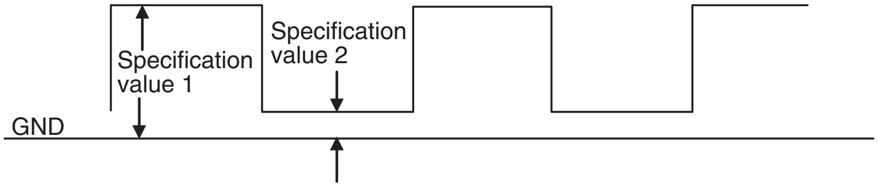

Specification value 1
Specification value 2
GND

Fig 10.2: Serial 3 lines specification value

Side A

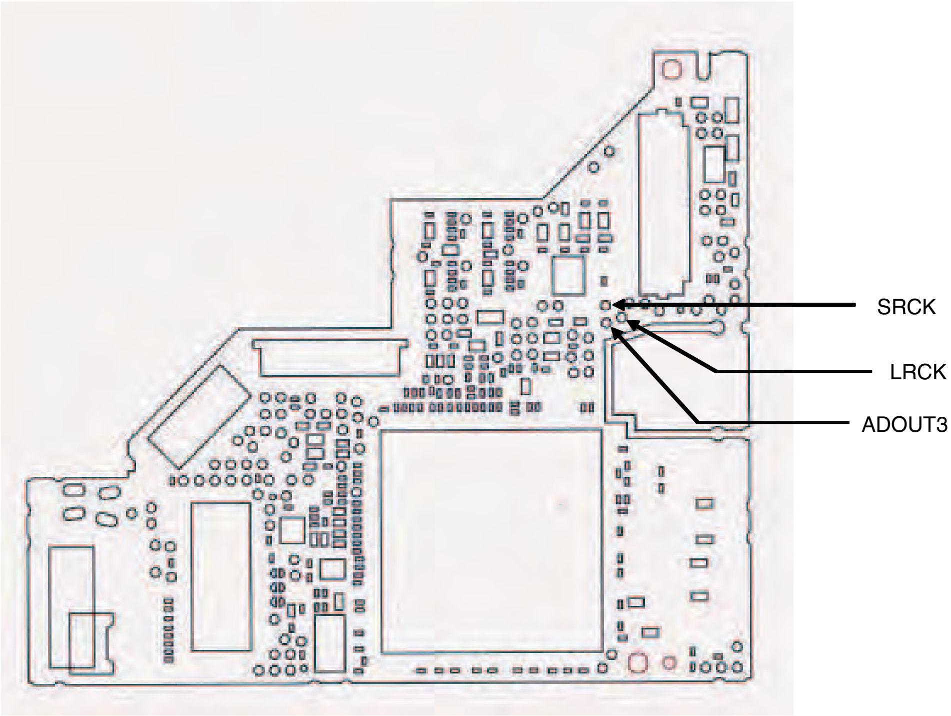
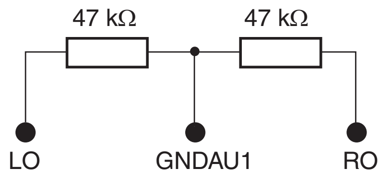

SRCK
LRCK
ADOUT3

Fig 10.3: Serial 3 lines check points

The following checks shall be conducted using the following measurement circuits with GNDAU1 being the reference.


47 kΩ
47 kΩ
LO
GNDAU1
RO

NO.	Check point 1 (stylus)	Specification value (rms)	Reference waveform
4	LO	1 400 ± 150 mV	Waveform 4
5	RO	1 400 ± 150 mV	Waveform 4

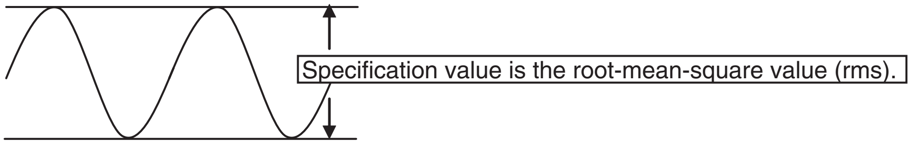

Specification value is the root-mean-square value (rms).

Fig 10.4: Analog audio out (LO, RO) specification value.

Side A

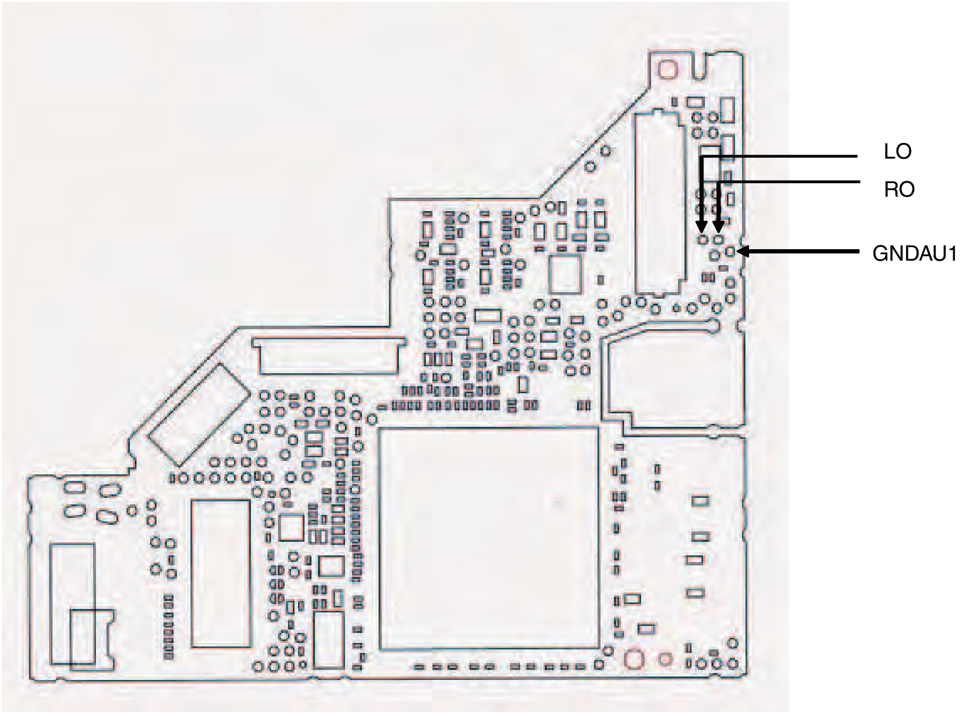

LO
RO
GNDAU1

Fig 10.5: Analog audio out check point

Check with DGND being the reference.
Check 2pin cord after connecting it to a jig, etc.

NO.	Check point 1 (stylus)	Specification value 1	Specification value 2	Reference waveform
6	IEC	VCC33 V-0.6 V or higher	0.4 V or lower	Waveform 5

Side A

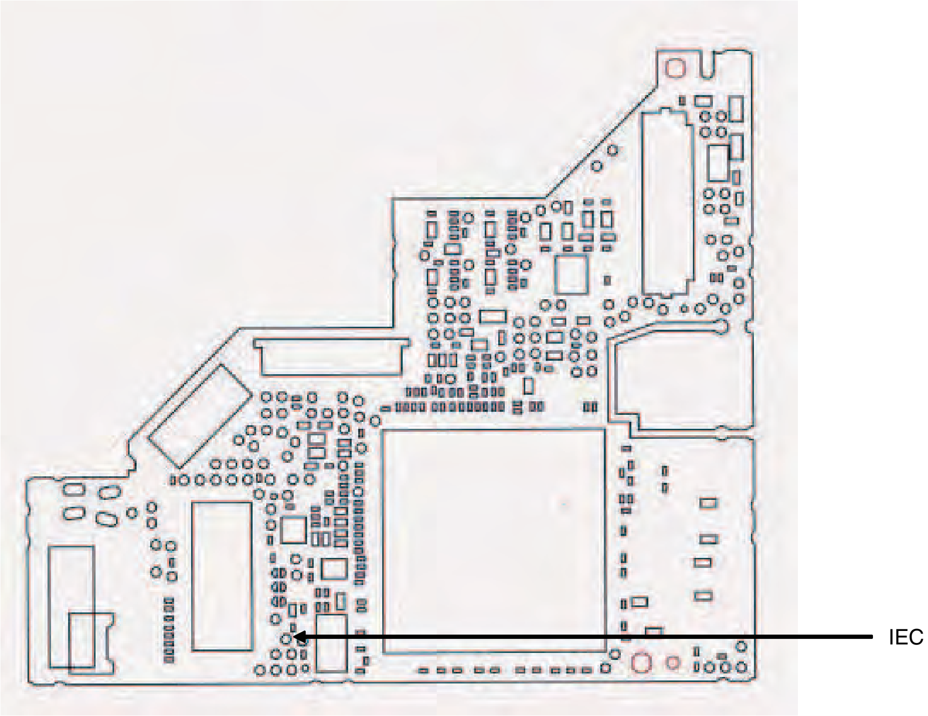
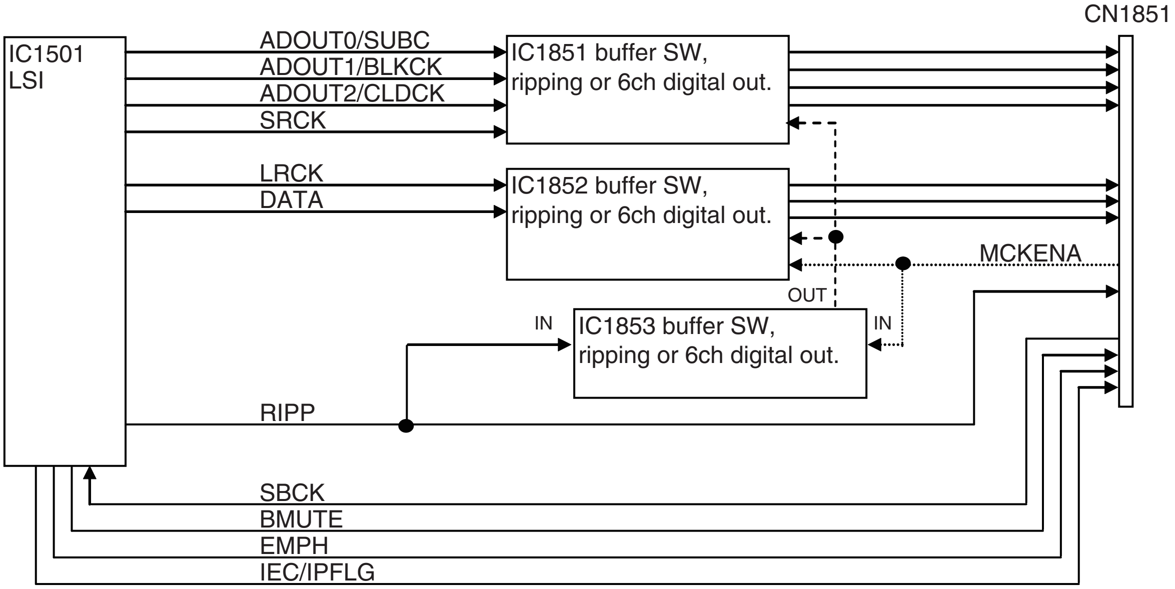


Fig 10.6: Digital audio signal (IECOUT) check point

<Outline> At the time of 6ch digital out, the serial 6 lines output from DVD-LSI (IC1501) is output via CN1581.
Furthermore, at the time of ripping, the serial 3 lines digital output + SUBC, output from DVD-LSI (IC1501), is output in 4 times speed via CN1851.


CN1851
IC1501
LSI
ADOUT0/SUBC
ADOUT1/BLKCK
ADOUT2/CLDCK
SRCK
IC1851 buffer SW,
ripping or 6ch digital out.
LRCK
DATA
IC1852 buffer SW,
ripping or 6ch digital out.
MCKENA
OUT
IN
IC1853 buffer SW,
ripping or 6ch digital out.
IN
RIPP
SBCK
BMUTE
EMPH
IEC/IPFLG

The signal at CN1851 for 6ch digital out/Ripping.

Pin No.	Pin name	6ch digital out	Ripping
23	SRCK	SRCK	SRCK
21	LRCK	LRCK	LRCK
19	AD0/SUBC	ADOUT0	SUBC
17	AD1/BLK	ADOUT1	BLKCK
15	AD2/CLD	ADOUT2	CLDCK
13	AD3/DATA	ADOUT3	DATA
11	IEC/IPFLG	IEC	IPFLG
9	-	-	-
7	SBCK	-	SBCK
5	BMUTE	BMUTE	-
4	MCKENA	Low	High
3	RIPP	High	Low
2	EMPH	EMPH	EMPH
Pins 1, 6, 8, 10, 12, 14, 16, 18, 20, 22 and 24 are GNDD.			

Fig 10.7: 6ch digital out/Ripping circuit

Playback DVD-REF-A1 TITLE22 CHAPTER 1, and check with GNDD being the reference.
In case of NG, check the applicable line, the periphery of the major components in the drawing above, soldering of the peripheral components and defective components.

Check 24pin FFC after connecting it to a jig, etc.

NO.	Check point 1 (stylus)	Specification value 1	Specification value 2
7	SRCK	VCC33 V-0.6 V or higher	0.4 V or lower
8	LRCK	VCC33 V-0.6 V or higher	0.4 V or lower
9	ADOUT0	VCC33 V-0.6 V or higher	0.4 V or lower
10	ADOUT1	VCC33 V-0.6 V or higher	0.4 V or lower
11	ADOUT2	VCC33 V-0.6 V or higher	0.4 V or lower
12	IEC	VCC33 V-0.6 V or higher	0.4 V or lower
13	MCKENA	-	VCC33 V x 0.3 V or lower

Rip common CDDA, and check with GNDD being the reference.
In case of NG, check the applicable line, the periphery of the major components in the drawing above, soldering of the peripheral components and defective components.

Check 24pin FFC after connecting it to a jig, etc.

NO.	Check point 1 (stylus)	Specification value 1	Specification value 2
14	SRCK	VCC33 V-0.6 V or higher	0.4 V or lower
15	LRCK	VCC33 V-0.6 V or higher	0.4 V or lower
16	SUBC	VCC33 V-0.6 V or higher	0.4 V or lower
17	BLKCK	VCC33 V-0.6 V or higher	0.4 V or lower
18	CLDCK	VCC33 V-0.6 V or higher	0.4 V or lower
19	DATA	VCC33 V-0.6 V or higher	0.4 V or lower
20	SBCK	VCC33 V-0.6 V or higher	0.4 V or lower
21	RIPP	-	VCC33 V x 0.3 V or lower

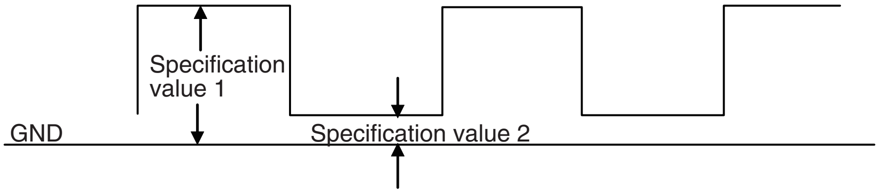
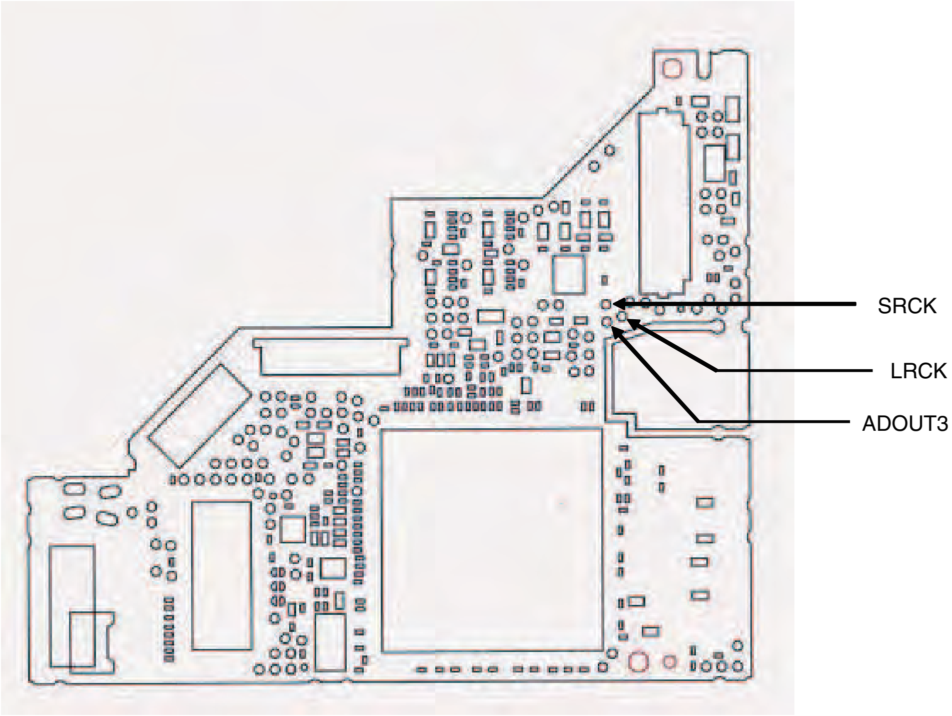


Fig 10.8: 6ch digital out/Ripping specification value

Side A


SRCK
LRCK
ADOUT3

Side B

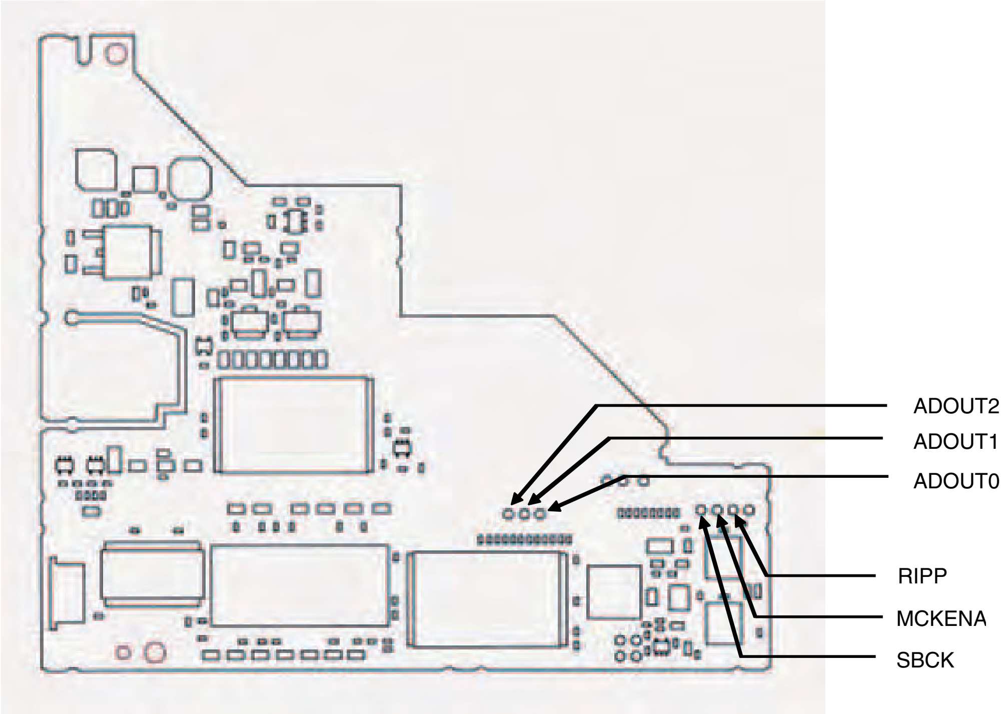

ADOUT2
ADOUT1
ADOUT0
RIPP
MCKENA
SBCK

Fig 10.9: 6ch digital out/Ripping check point

Check 11: Is the video circuit OK?

<Outline> Composite signal and component signal are output from DVD-LSI (IC1501), and are output from the HOST I/F (CN1901) via a buffer circuit.

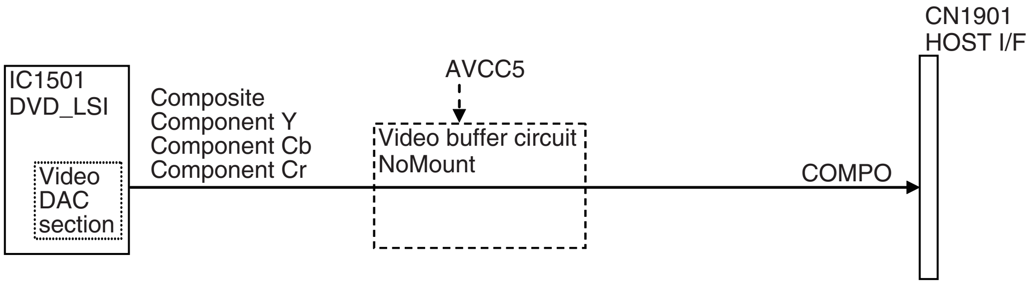

CN1901
HOST I/F
AVCC5
IC1501
DVD_LSI
Video
DAC
section
Composite
Component Y
Component Cb
Component Cr
Video buffer circuit
NoMount
COMPO

Fig 11.1: Video circuit

<Checking method> Playback DVD-REF-A1 TITLE2 CHAPTER5 (WHITE 100%), and monitor COMPO signal with an oscilloscope with GNDV1 (stylus) being the reference. Set the trigger mode to “TV trigger” and the trigger line to “150 line”.

Check point 1 (stylus)

NO.		Specification value	Reference waveform
1	COMPO	1 000 mVpp ± 5 %	Waveform 6

In case of NG, check the applicable line, the periphery of the major components in the drawing above, soldering of the peripheral components and defective components.

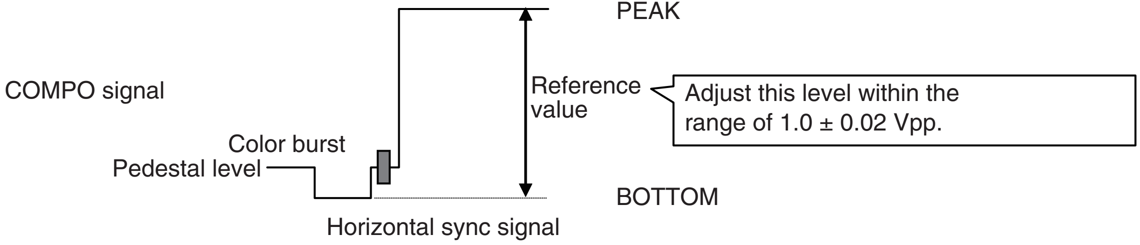

PEAK
COMPO signal
Reference
value
Adjust this level within the range of 1.0 ± 0.02 Vpp.
Color burst
Pedestal level
BOTTOM
Horizontal sync signal

Fig 11.2: Waveform for the case of composite white 100% output

<Video level readjustment method>
In case the video composite output is outside of the specification value, readjust the level according to the method described below.(Note : Units are exchanged, the video output is not adjusted.)
Turn the volume (VR1671) to adjust the video level within the range of 1.0 ± 0.02 Vpp.
The adjustment specification is 1.0 ± 0.02 Vpp.

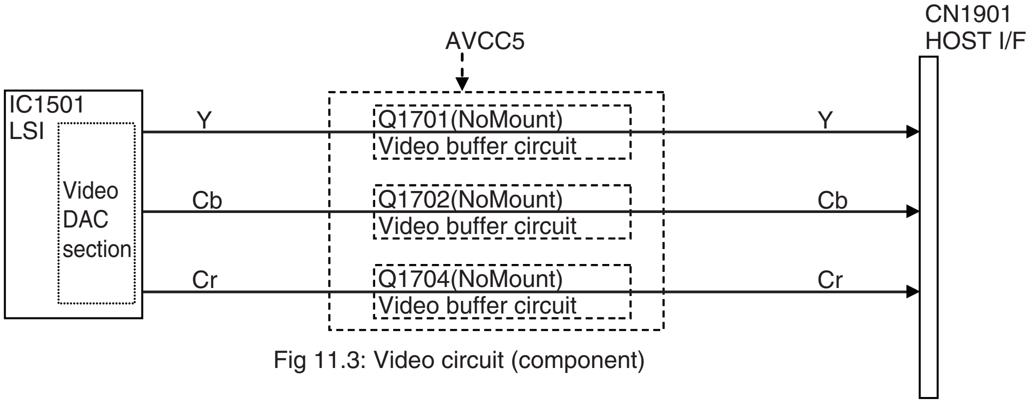

CN1901
HOST I/F
AVCC5
IC1501
LSI
Video
DAC
section
Y
Cb
Cr
Q1701(NoMount)
Video buffer circuit
Q1702(NoMount)
Video buffer circuit
Q1704(NoMount)
Video buffer circuit
Y
Cb
Cr

Fig 11.3: Video circuit (component)

<Checking method> Playback DVD-REF-A1 TITLE2 CHAPTER19 (100% Color Bars), and monitor Y, Cb, and Cr signal with an oscilloscope with GNDV1 (stylus) being the reference. Set the trigger mode to “TV trigger” and the trigger line to “150 line”.

NO.	Check point 1 (stylus)	Specification value	Reference waveform
2	Y	1 000 mVpp ± 5%	Waveform 7
3	Cb	700 mVpp ± 5%	Waveform 7
4	Cr	700 mVpp ± 5%	Waveform 7

In case of NG, check the applicable line, the periphery of the major components in the drawing above, soldering of the peripheral components and defective components.

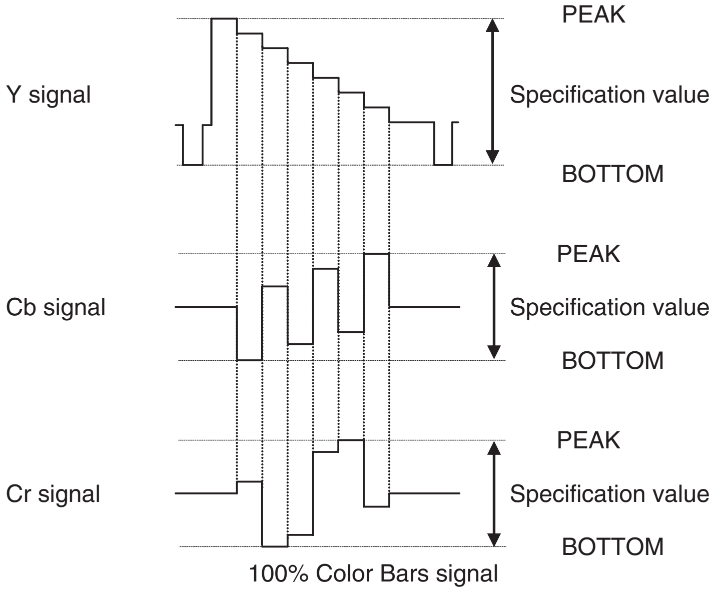

Y signal
PEAK
Specification value
BOTTOM
Cb signal
PEAK
Specification value
BOTTOM
Cr signal
PEAK
Specification value
BOTTOM
100% Color Bars signal

Fig 11.4 Waveform for the case of component 100% Color Bars output

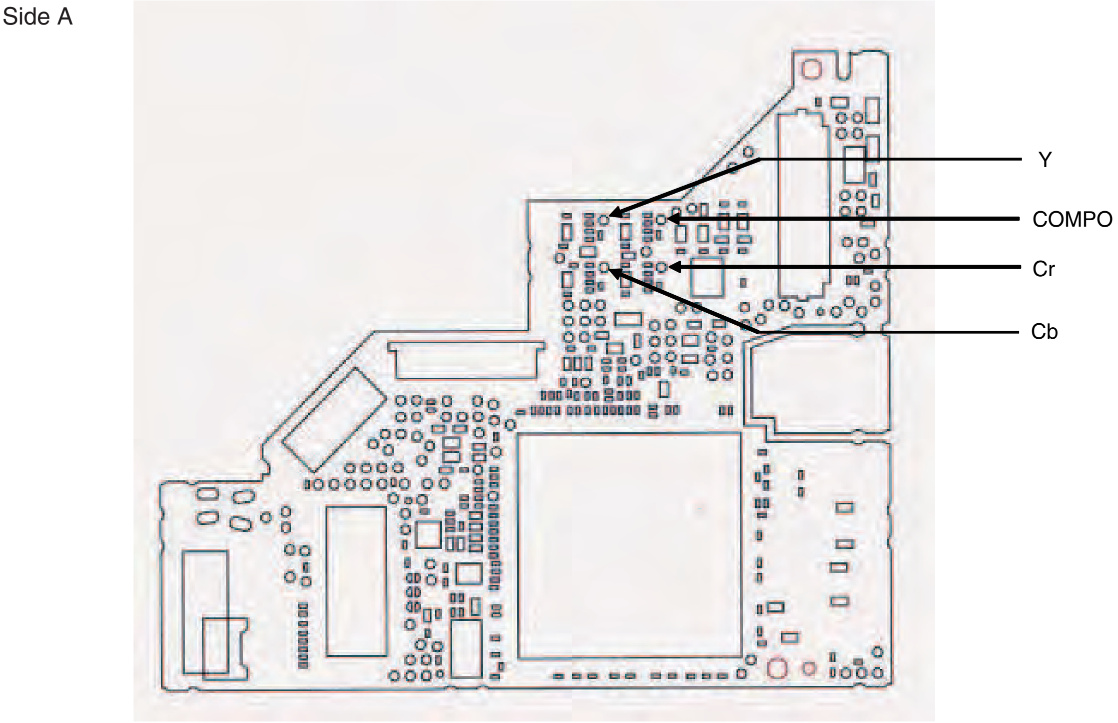

Side A
Y
COMPO
Cr
Cb

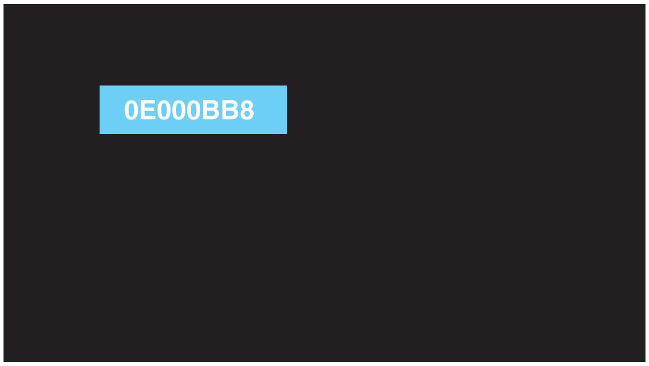
Fig 11.5: VIDEO signal check point

Check 12:How to judge whether the flash memory has reached its life or not.

If the reaction to user operation is slow or operation is slow in general, there is a possibility that the flash memory has reached its life.
Make judgment regarding the flash memory life by looking at the display of the LD energizing time.

1.Let the LD energizing time displayed.
(Refer to the FE test mode for the method of displaying the LD energizing time.)
2.If the second digit from the left of the energizing time display is showing E,
such as “∗E∗∗ ∗∗∗∗ ”, it means that the flash memory has reached its life.

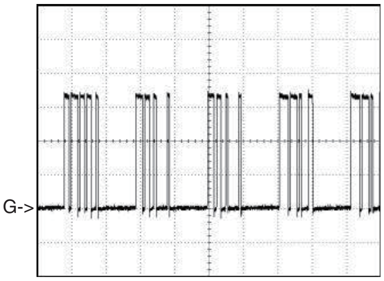
Example:



0E000BB8

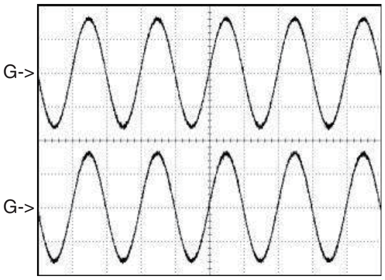
AUDIO VIDEO

CH1 : ADOUT3
Reference voltage: DGND2 1 V/div. 5 µsec/div



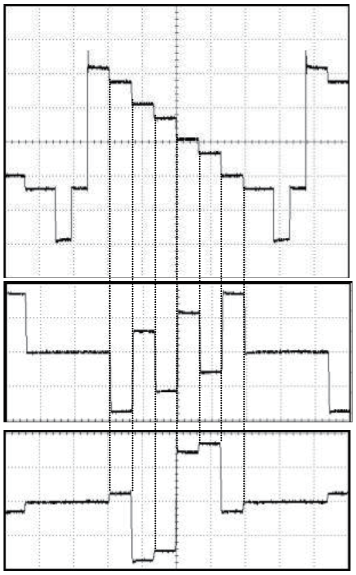
Waveform 1

CH1 : LO
CH2 : RO
Reference voltage: GNDAU2 1 V/div. 500 µsec/div



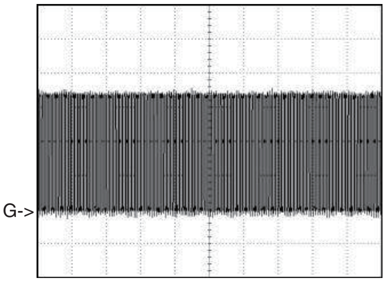
Waveform 4

[100% Color Bars]
CH1 : Y
CH2 : Cb
CH3 : Cr
Reference voltage: GNDV1 200 mV/div. 5 µsec/div



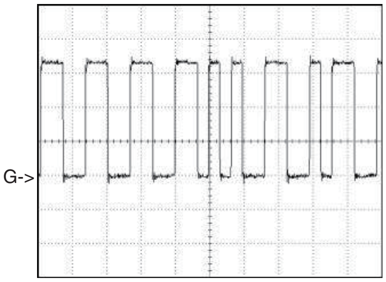
Waveform 7

CH1 : SRCK
Reference voltage: DGND2 1 V/div. 5 µsec/div



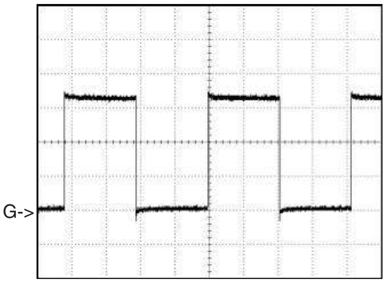
Waveform 2

CH1 : IECOUT
Reference voltage: DGND2 1 V/div. 500 nsec/div



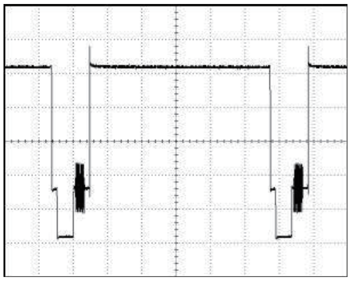
Waveform 5

CH1 : LRCK
Reference voltage: DGND2 1 V/div. 5 µsec/div



Waveform 3

[WHITE 100IRE]
CH1 : COMPO
Reference voltage: GNDV1 200 mV/div. 10 µsec/div



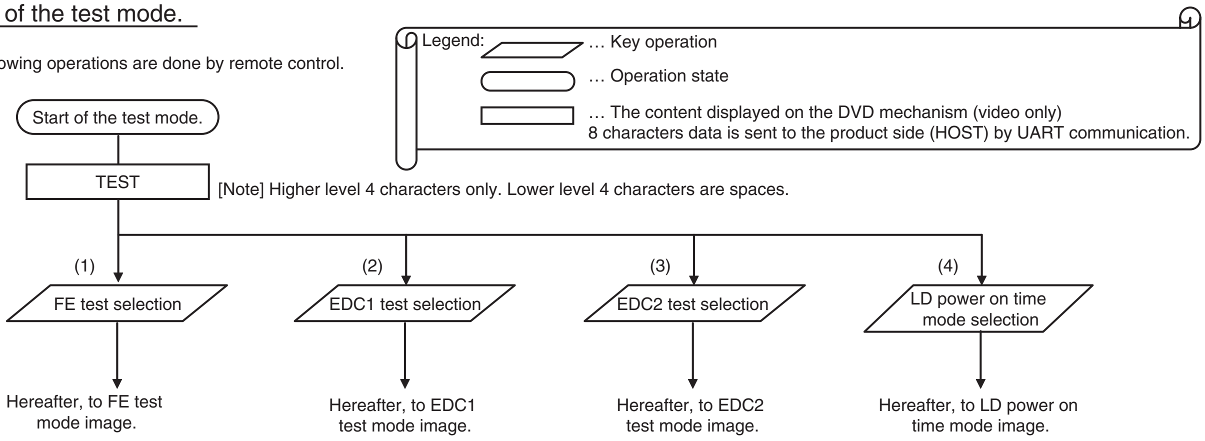
Waveform 6

6. SERVICE MODE

6.1 DVD TEST MODE

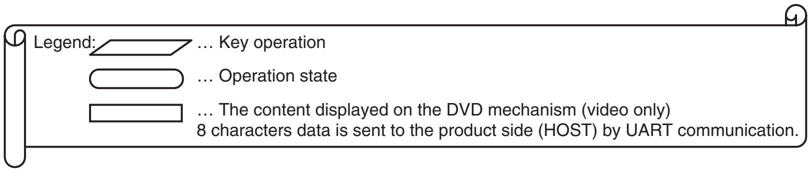
Image of the test mode.

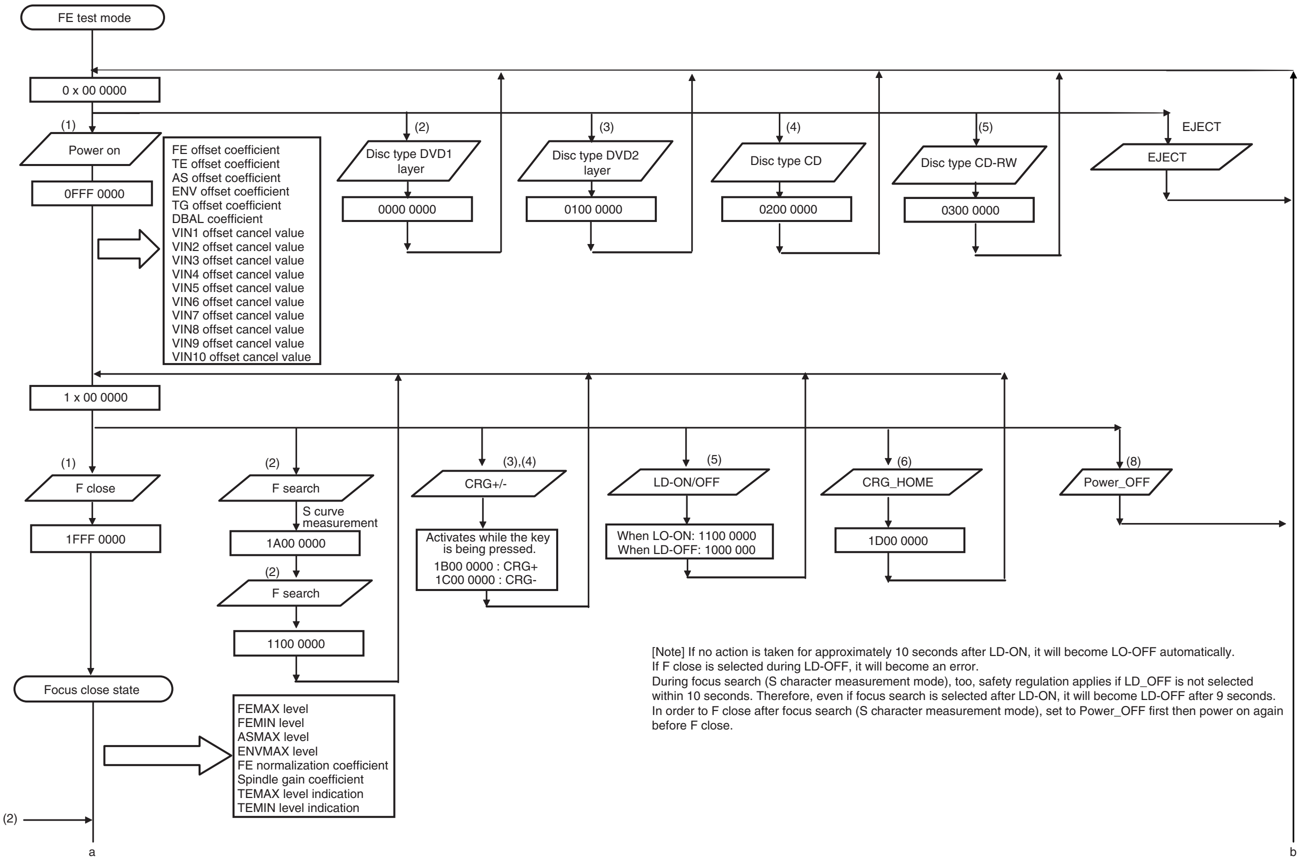
The following operations are done by remote control.


Legend:
… Key operation
… Operation state
… The content displayed on the DVD mechanism (video only)
8 characters data is sent to the product side (HOST) by UART communication.
Start of the test mode.
TEST
[Note] Higher level 4 characters only. Lower level 4 characters are spaces.
(1)
FE test selection
Hereafter, to FE test mode image.
(2)
EDC1 test selection
Hereafter, to EDC1 test mode image.
(3)
EDC2 test selection
Hereafter, to EDC2 test mode image.
(4)
LD power on time mode selection
Hereafter, to LD power on time mode image.

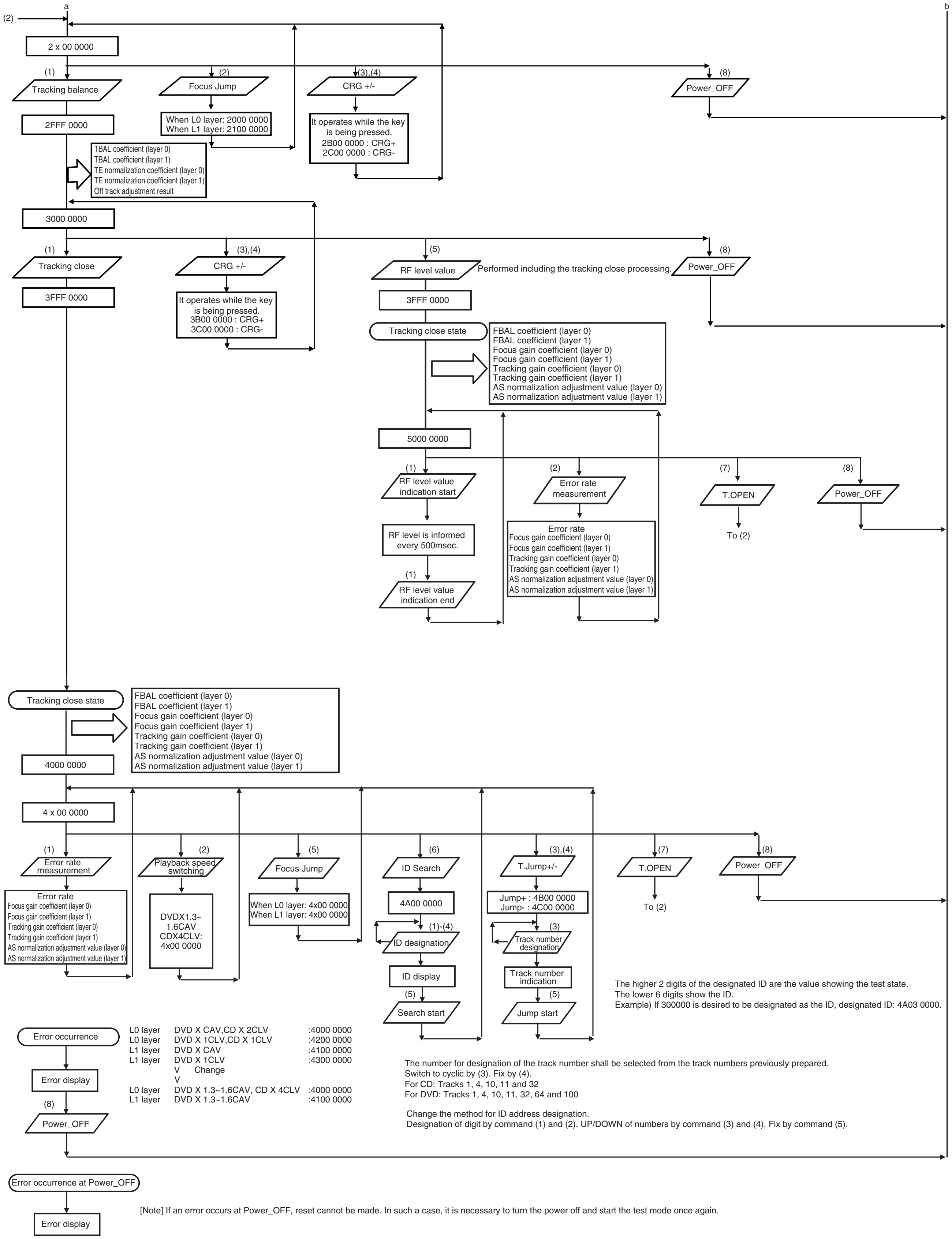
[Note] In order to move on to another test after selecting a test (FE/EDC1/EDC2), it is necessary to restart the DVD mechanism in the test mode.

Image of the front end test mode.


Legend:
… Key operation
… Operation state
… The content displayed on the DVD mechanism (video only)
8 characters data is sent to the product side (HOST) by UART communication.


FE test mode
0 x 00 0000
(1)
Power on
0FFF 0000
FE offset coefficient
TE offset coefficient
AS offset coefficient
ENV offset coefficient
TG offset coefficient
DBAL coefficient
VIN1 offset cancel value
VIN2 offset cancel value
VIN3 offset cancel value
VIN4 offset cancel value
VIN5 offset cancel value
VIN6 offset cancel value
VIN7 offset cancel value
VIN8 offset cancel value
VIN9 offset cancel value
VIN10 offset cancel value
(2)
Disc type DVD1 layer
0000 0000
(3)
Disc type DVD2 layer
0100 0000
(4)
Disc type CD
0200 0000
(5)
Disc type CD-RW
0300 0000
EJECT
EJECT
1 x 00 0000
(1)
F close
1FFF 0000
Focus close state
(2)
F search
S curve measurement
1A00 0000
(2)
F search
1100 0000
FEMAX level
FEMIN level
ASMAX level
ENVMAX level
FE normalization coefficient
Spindle gain coefficient
TEMAX level indication
TEMIN level indication
(3),(4)
CRG+/-
Activates while the key is being pressed.
1B00 0000 : CRG+
1C00 0000 : CRG-
(5)
LD-ON/OFF
When LO-ON: 1100 0000
When LD-OFF: 1000 000
(6)
CRG_HOME
1D00 0000
(8)
Power_OFF
(2)
a
b

[Note] If no action is taken for approximately 10 seconds after LD-ON, it will become LO-OFF automatically.
If F close is selected during LD-OFF, it will become an error.
During focus search (S character measurement mode), too, safety regulation applies if LD_OFF is not selected within 10 seconds. Therefore, even if focus search is selected after LD-ON, it will become LD-OFF after 9 seconds.
In order to F close after focus search (S character measurement mode), set to Power_OFF first then power on again before F close.


a
b
(2)
2 x 00 0000
(1)
Tracking balance
(2)
Focus Jump
(3),(4)
CRG +/-
(8)
Power_OFF
2FFF 0000
When L0 layer: 2000 0000
When L1 layer: 2100 0000
It operates while the key is being pressed.
2B00 0000 : CRG+
2C00 0000 : CRG-
TBAL coefficient (layer 0)
TBAL coefficient (layer 1)
TE normalization coefficient (layer 0)
TE normalization coefficient (layer 1)
Off track adjustment result
3000 0000
(1)
Tracking close
(3),(4)
CRG +/-
(5)
RF level value
Performed including the tracking close processing.
(8)
Power_OFF
3FFF 0000
It operates while the key is being pressed.
3B00 0000 : CRG+
3C00 0000 : CRG-
3FFF 0000
Tracking close state
FBAL coefficient (layer 0)
FBAL coefficient (layer 1)
Focus gain coefficient (layer 0)
Focus gain coefficient (layer 1)
Tracking gain coefficient (layer 0)
Tracking gain coefficient (layer 1)
AS normalization adjustment value (layer 0)
AS normalization adjustment value (layer 1)
5000 0000
(1)
RF level value indication start
(2)
Error rate measurement
(7)
T.OPEN
(8)
Power_OFF
RF level is informed every 500msec.
Error rate
Focus gain coefficient (layer 0)
Focus gain coefficient (layer 1)
Tracking gain coefficient (layer 0)
Tracking gain coefficient (layer 1)
AS normalization adjustment value (layer 0)
AS normalization adjustment value (layer 1)
To (2)
(1)
RF level value indication end
Tracking close state
FBAL coefficient (layer 0)
FBAL coefficient (layer 1)
Focus gain coefficient (layer 0)
Focus gain coefficient (layer 1)
Tracking gain coefficient (layer 0)
Tracking gain coefficient (layer 1)
AS normalization adjustment value (layer 0)
AS normalization adjustment value (layer 1)
4000 0000
4 x 00 0000
(1)
Error rate measurement
(2)
Playback speed switching
(5)
Focus Jump
(6)
ID Search
(3),(4)
T.Jump+/-
(7)
T.OPEN
(8)
Power_OFF
Error rate
Focus gain coefficient (layer 0)
Focus gain coefficient (layer 1)
Tracking gain coefficient (layer 0)
Tracking gain coefficient (layer 1)
AS normalization adjustment value (layer 0)
AS normalization adjustment value (layer 1)
DVDX1.3~1.6CAV
CDX4CLV:
4x00 0000
When L0 layer: 4x00 0000
When L1 layer: 4x00 0000
4A00 0000
(1)-(4)
ID designation
ID display
(5)
Search start
Jump+ : 4B00 0000
Jump- : 4C00 0000
(3)
Track number designation
Track number indication
(5)
Jump start
To (2)
Error occurrence
Error display
(8)
Power_OFF
Error occurrence at Power_OFF
Error display

The higher 2 digits of the designated ID are the value showing the test state.
The lower 6 digits show the ID.
Example) If 300000 is desired to be designated as the ID, designated ID: 4A03 0000.

L0 layer	DVD X CAV,CD X 2CLV	:4000 0000
L0 layer	DVD X 1CLV,CD X 1CLV	:4200 0000
L1 layer	DVD X CAV	:4100 0000
L1 layer	DVD X 1CLV	:4300 0000
	V Change V	
L0 layer	DVD X 1.3~1.6CAV, CD X 4CLV	:4000 0000
L1 layer	DVD X 1.3~1.6CAV	:4100 0000

The number for designation of the track number shall be selected from the track numbers previously prepared.
Switch to cyclic by (3). Fix by (4).
For CD: Tracks 1, 4, 10, 11 and 32
For DVD: Tracks 1, 4, 10, 11, 32, 64 and 100

Change the method for ID address designation.
Designation of digit by command (1) and (2). UP/DOWN of numbers by command (3) and (4). Fix by command (5).

[Note] If an error occurs at Power_OFF, reset cannot be made. In such a case, it is necessary to turn the power off and start the test mode once again.

EDC. Image of the test mode

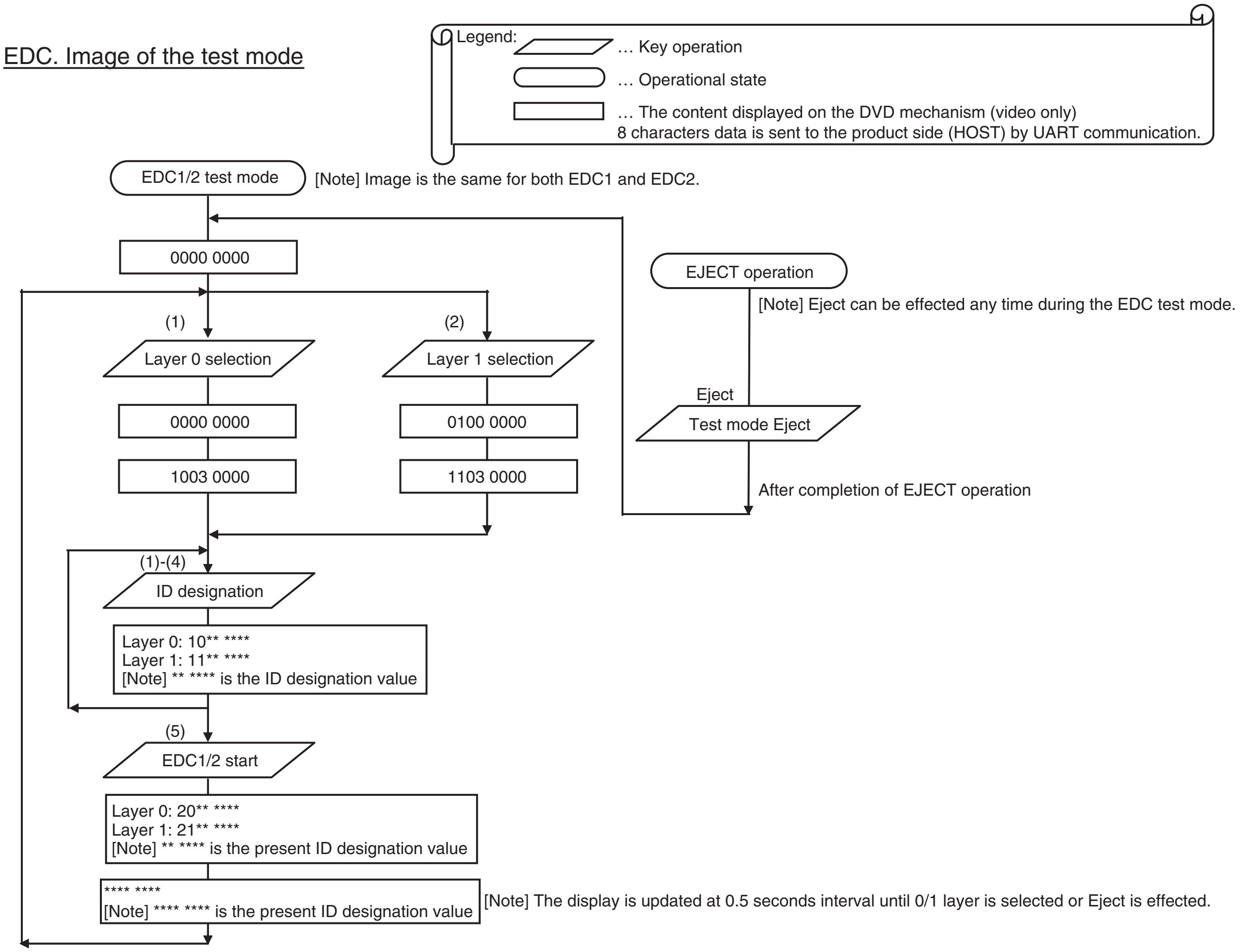
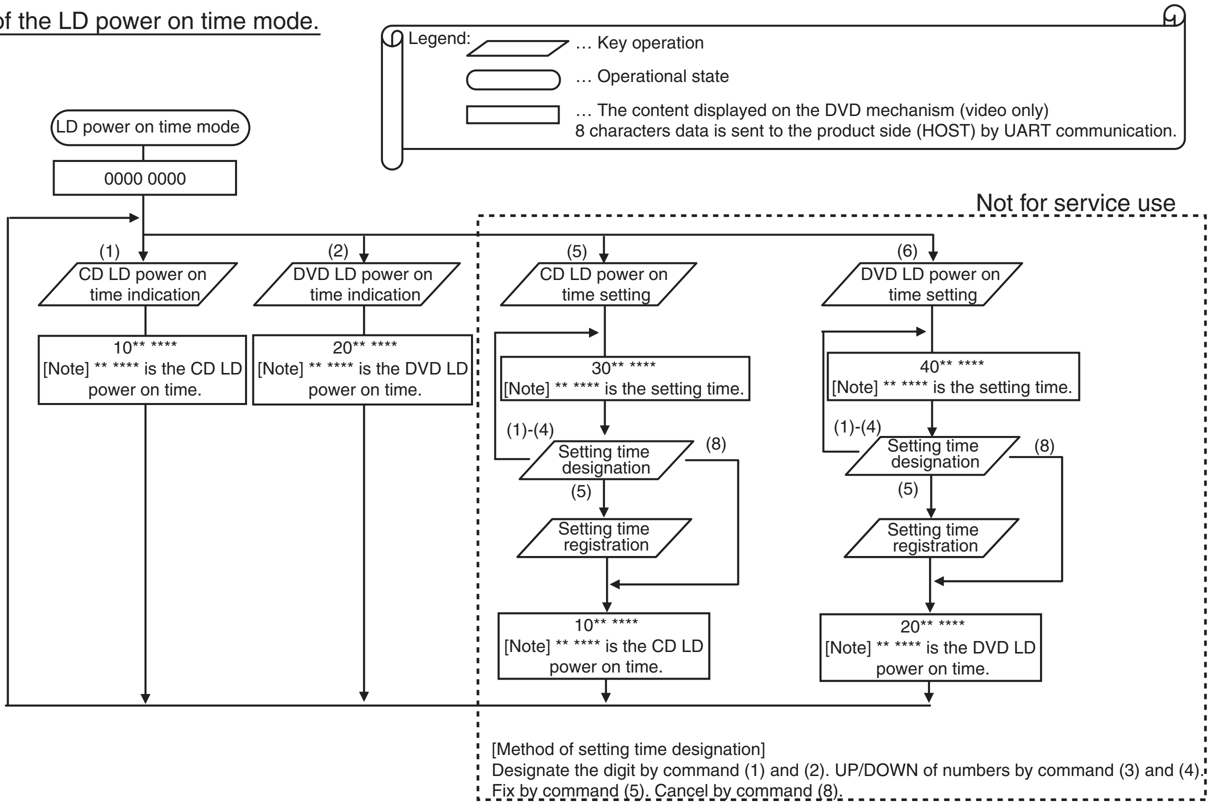

Legend:
… Key operation
… Operational state
… The content displayed on the DVD mechanism (video only)
8 characters data is sent to the product side (HOST) by UART communication.
EDC1/2 test mode
[Note] Image is the same for both EDC1 and EDC2.
0000 0000
(1)
(2)
Layer 0 selection
Layer 1 selection
0000 0000
0100 0000
1003 0000
1103 0000
EJECT operation
[Note] Eject can be effected any time during the EDC test mode.
Eject
Test mode Eject
After completion of EJECT operation
(1)-(4)
ID designation
Layer 0: 10** ****
Layer 1: 11** ****
[Note] ** **** is the ID designation value
(5)
EDC1/2 start
Layer 0: 20** ****
Layer 1: 21** ****
[Note] ** **** is the present ID designation value
**** ****
[Note] **** **** is the present ID designation value
[Note] The display is updated at 0.5 seconds interval until 0/1 layer is selected or Eject is effected.

Image of the LD power on time mode.


Legend:
… Key operation
… Operational state
… The content displayed on the DVD mechanism (video only)
8 characters data is sent to the product side (HOST) by UART communication.
LD power on time mode
0000 0000
Not for service use
(1)
CD LD power on time indication
10** ****
[Note] ** **** is the CD LD power on time.
(2)
DVD LD power on time indication
20** ****
[Note] ** **** is the DVD LD power on time.
(5)
CD LD power on time setting
30** ****
[Note] ** **** is the setting time.
(1)-(4)
Setting time designation
(8)
(5)
Setting time registration
10** ****
[Note] ** **** is the CD LD power on time.
(6)
DVD LD power on time setting
40** ****
[Note] ** **** is the setting time.
(1)-(4)
Setting time designation
(8)
(5)
Setting time registration
20** ****
[Note] ** **** is the DVD LD power on time.

[Method of setting time designation]
Designate the digit by command (1) and (2). UP/DOWN of numbers by command (3) and (4).
Fix by command (5). Cancel by command (8).

[Note] If the power on time is 999999 hours or more, it is always reported as 999999 hours.
[Note] If the power on time is "*E** ****", the value may not be correct due to the life of the flash memory.

Error status	OSD *1	UART *2	Meaning	Method of reset			
				ACC Off/On	Source Off/On	Eject	Play Key
Media Error	It is a disc unable to be played back. NON-PLAYABLE DISC	00h	A disc containing the unplayable Format only.	X	X	X	-
Open	(No display)	10h	Door open error	*	*	*	*
Read Error	ERROR-02-99	20h	Transfer start error	X	X	X	X
Focus Error(Focus Error in mechanism set up)	ERROR-02-90	21h	Focus error	X	X	X	X
Surface Error	ERROR-02-9E	22h	Focus error during set up (A focus has never been achieved with that disc.)	X	X	X	X
Address not found (Invalid Track)	ERROR-02-80	23h	Address not found.	X	X	X	X
Spindle Lock	ERROR-02-91	24h	Spindle lock NG (the disc cannot rotate)	X	X	X	X
Carriage HOME	ERROR-02-92	25h	Carriage home NG (The pick up tries to return to carriage home, but it cannot go back and stopped.)	X	X	X	X
ID/SUBCODE Read Error	ERROR-02-94	26h	ID/SUBCODE Read Error (ID/SUBCODE cannot be read due to scratch or stain.)	X	X	X	X
AV CHIP decode Error	ERROR-02-9A	2Ah	AV CHIP decode NG (AV chip cannot be decoded.)	X	X	X	X
AV CHIP Recovery NG	ERROR-02-9B	2Bh	AV CHIP recovery NG	X	X	X	X
Error of PLAY BACK Mode Status	ERROR-02-9C	2Ch	Playback state error (An error due to software bug.)	X	X	X	X
Disc Data Error	ERROR-02-9D	2Dh	Disc Data NG	X	X	X	X
Temp Error (In Case of High Temperature)	Temperature protection circuit is being activated. THERMAL PROTECTION IN MOTION	30h	High temperature (Playback is stopped because the pick up temperature is 89 °C or higher.)	X	-	-	-
No Disc (including Disc loading and ejecting)	(No display)	40h	Disc has not been inserted. (Including Load in process or Eject in process.)	*	*	*	*
Loading_Mecha Error	(No display)	50h	Loading mechanism error (The disc cannot be clamped.)	X	-	X	-
DRM Error	It is a protected disc. PROTECTED DISC	70h	DRM error (All music cannot be played back due to DRM.)	-	-	X	-
Region code Error NG	Region code is incorrect. DIFFERENT REGION DISC	90h	Region code NG (Unable to be played back due to incorrect mechanism region.)	-	-	X	-
CPPM*3 Key Error *4	It is a disc unable to be played back. NON-PLAYABLE DISC	91h	Key Error for playback	-	-	X	-
CPRM Key Error *7	NON-PLAYABLE DISC	93h	Key Error for playback	-	-	X	-
AWM*5 Error *4	(No display)	*6	Playback the illegally copied disc by DVD-A (Mute the sound on the mechanism side.)	X	X	X	-
REQUEST error	ERROR-02-A0	A0h	REQUEST error	X	X	X	X
Failure in issuing read command (chip dependent)	ERROR-02-A1	A1h	Failure in issuing the read command	X	X	X	X
Adjustment of L0 is NG.	ERROR-02-A2	A2h	L0 adjustment is NG.	X	X	X	X
Adjustment of L1 is NG.	ERROR-02-A3	A3h	L1 adjustment is NG	X	X	X	X
LD system NG	ERROR-02-A4	A4h	LD system NG	X	X	X	X
Gain adjustment system NG.	ERROR-02-A5	A5h	Gain adjustment system NG.	X	X	X	X
Gain determining system NG.	ERROR-02-A6	A6h	Gain determining system NG.	X	X	X	X
Servo initial setting related items NG.	ERROR-02-A7	A7h	Servo initial setting related items NG.	X	X	X	X
Disc is not clamped yet.	ERROR-02-A8	A8h	Disc is not clamped yet.	X	X	X	X
Tracking system NG.	ERROR-02-A9	A9h	Tracking system NG	X	X	X	X
Media setting system NG.	ERROR-02-AA	AAh	Media setting system NG	X	X	X	X
Focus Error	ERROR-02-AB	ABh	JUMP over layers NG	X	X	X	X
Error of PLAY BACK Mode Status	ERROR-02-B0	B0h	Navigation command error	X	X	X	X
Error of PLAY BACK Mode Status	ERROR-02-B1	B1h	Retry over	X	X	X	X
Undefined Error	ERROR-FF-FF	FFh	Undefined error	X	X	X	X

X: Cancel the error by operation. -: Error is not cancelled by operation. *: No setting

*1 A content displayed on OSD. As for the items having multiple display patterns, the upper row is for the Japanese version Full GUI, and the lower row is for the Touch Panel model and Full GUI (English version).

*2 A parameter of UART command, such as “receipt error notice”, that the DVD mechanism transmits.

*3 CPPM(Content Protection for Prerecorded Media) : A copyright protection technique used in DVD-A. The protection is realized by using the keys recorded on the media and the device key held by the player.

*4 DVD-A compatible model only.
When an error has occurred, only the audio output will be muted but playback operation will continue. Furthermore, acceptance of the user operation will be the same as usual.

*5 AWM (Audio WaterMark): Electronic watermark. Information on the copyright owner or CCI (copy control information) are recorded so that illegally copied discs can be identified.

*6 Notice as an error status will not be given

*7 CPRM(Content Protection for Recordable Media) : A copyright protection technique for digital contents used for re-writable DVD or memory card. (DVD-VR model only)

7. DISASSEMBLY

● Removing the Grille Assy and the Panel Unit (Fig.1)

1. Push the [Detach] Button and then remove the Grille Assy.

2. Remove the two screws and then remove the Holder.

3. Disconnect the connector.

4. Remove the two screws and then remove the Panel Unit.

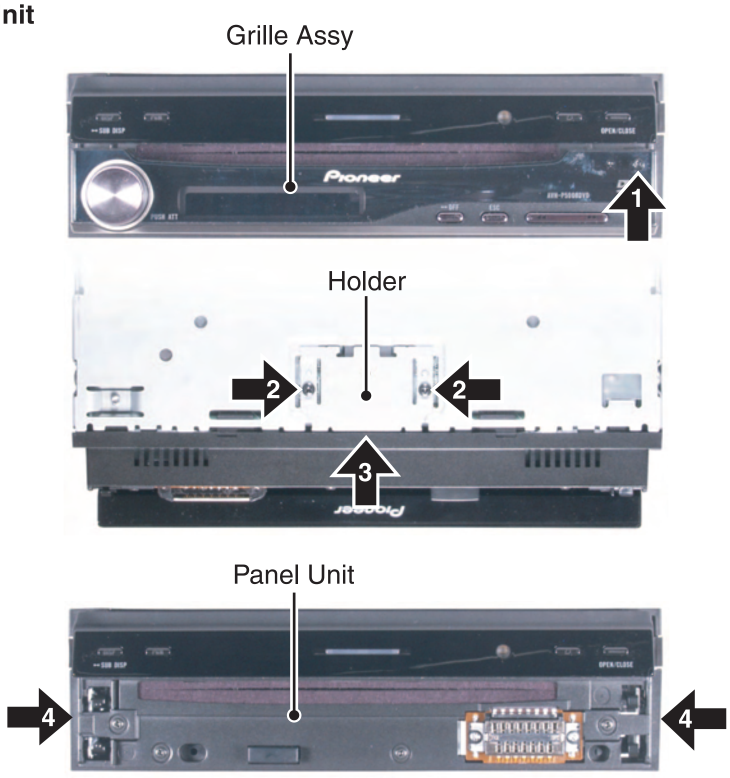

Grille Assy
1
Holder
2
2
3
Panel Unit
4
4

Fig.1

●How to Separate the Upper Case and the Lower Case (Fig. 2)

1. Remove the seven screws.

2. Open the Upper Case and the Lower Case in the direction indicated by arrows.

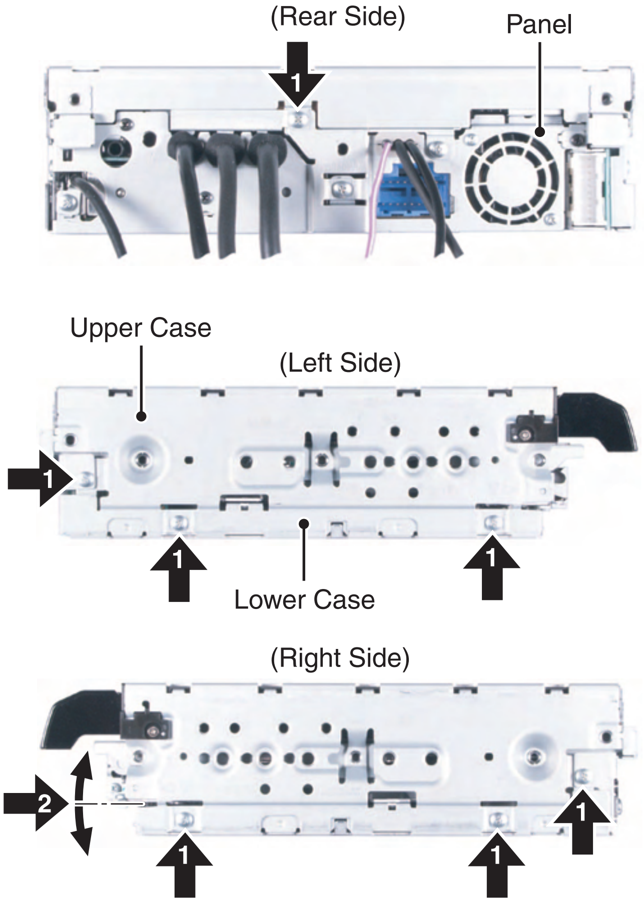

(Rear Side)
Panel
1
Upper Case
(Left Side)
1
1
1
Lower Case
(Right Side)
2
1
1
1

Fig.2

Removing the DVD Mechanism Module (Fig.3)

1 Remove the four screws and then bring down the Bracket toward the Upper Case. See Fig.3 (2/2).

2 Remove the four screws and then bring down the DVD Mechanism Module toward the Upper Case. See Fig.3 (2/2).

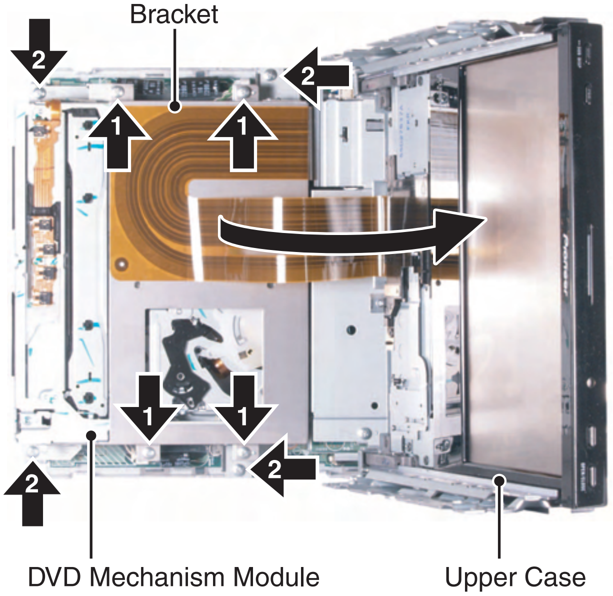

Bracket
2
2
1
1
1
1
2
2
DVD Mechanism Module
Upper Case

Fig.3 (1/2)

3 Disconnect the three connectors.

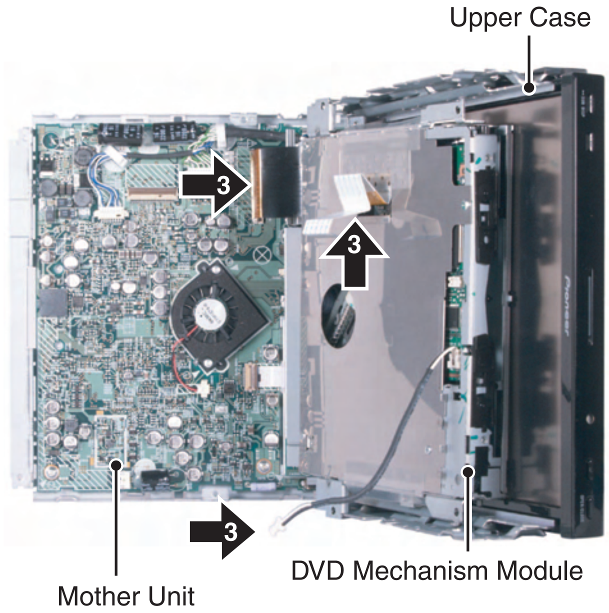

Upper Case
3
3
3
Mother Unit
DVD Mechanism Module

Fig.3 (2/2)

Removing the Holder and the Panel (Fig.4)

1 Remove the three screws.

2 Remove the three screws.

3 Remove the two screws and then remove the Panel.

4 Remove the screw.

5 Straighten the tabs at two locations indicated and then remove the Holder.

[Caution]
The Panel cannot be removed in 3 unless the Holder is removed in advance in 4 and 5 .

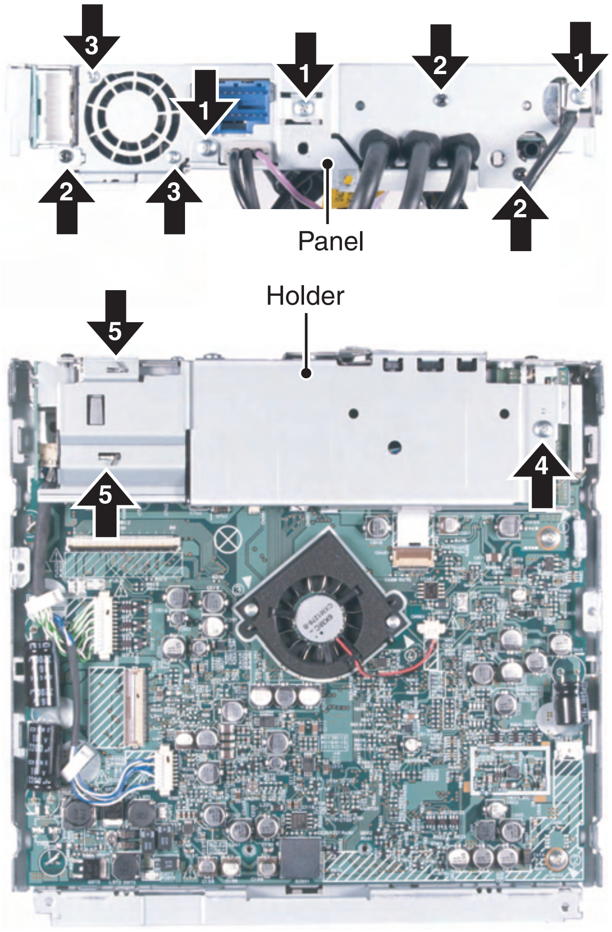


Fig.4

Removing the Mother Unit (Fig.5)

1 Disconnect the connector.

2 Remove the two screws.

3 Remove the two screws.

4 Straighten the tabs at three locations indicated and then remove the Mother Unit.

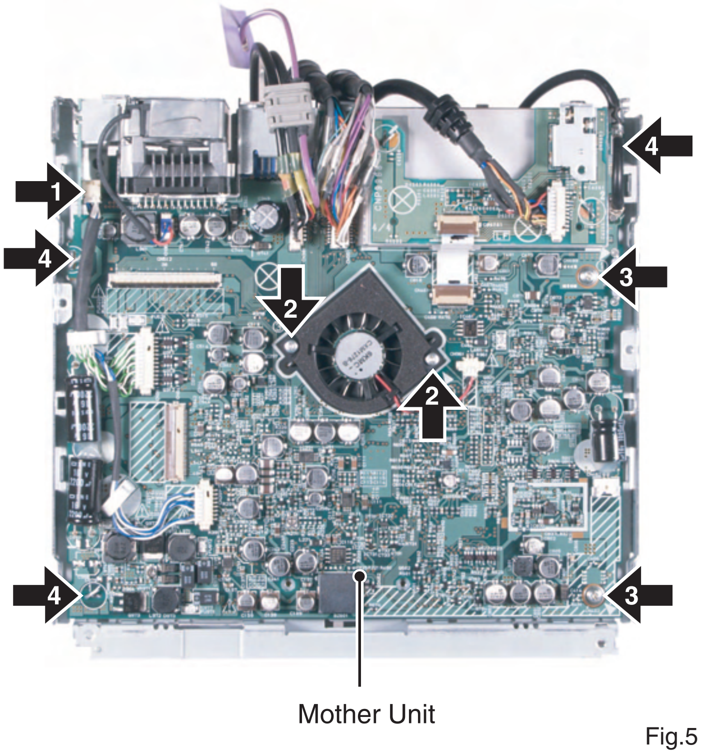


Fig.5

● Removing the Monitor PCB 1/2 (Fig.6)

1 Remove the two screws and then remove the two Guids(Right side and Left side).

2 Pull out the Monitor Assy in the direction indicated by an arrow.

3 Remove the three screws and then remove the Cover.

4 Disconnect the connector.

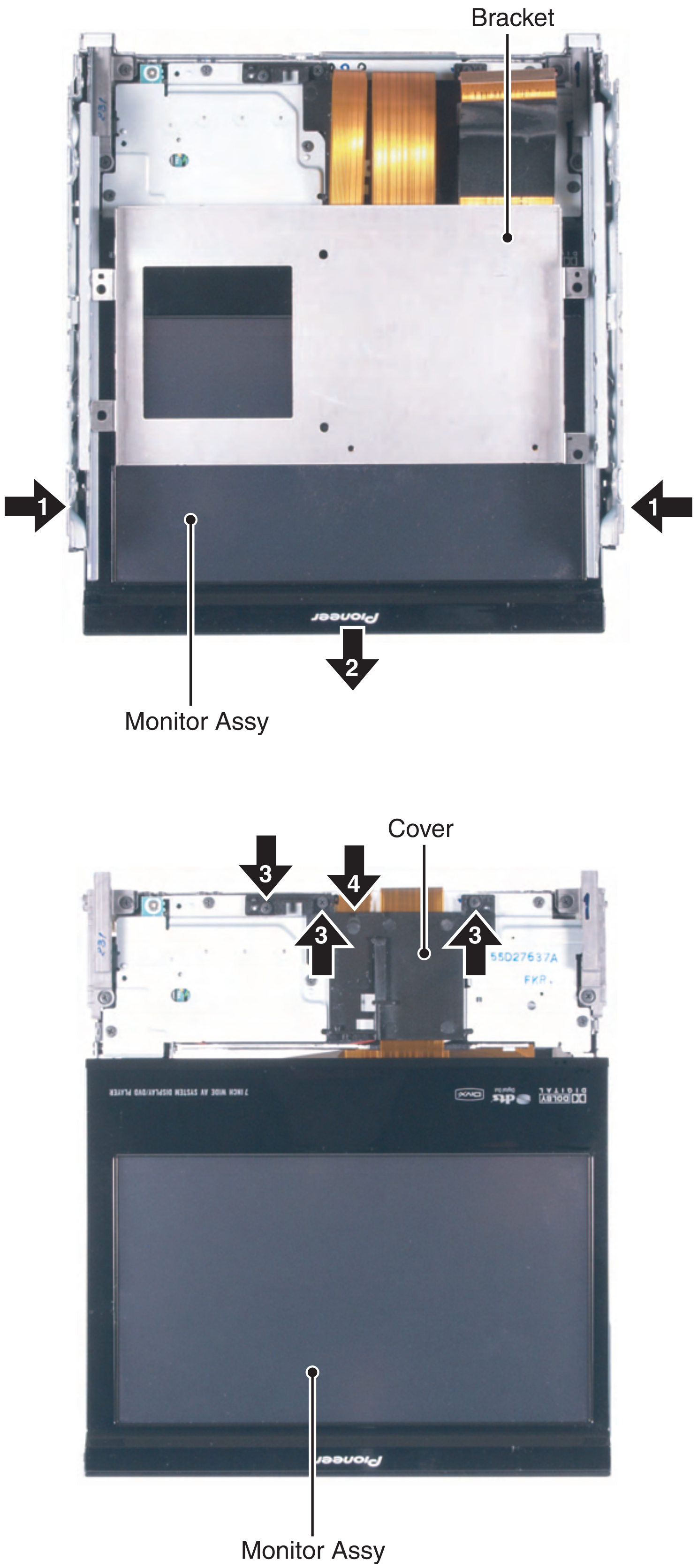

Bracket
1
1
2
Monitor Assy
Cover
3
4
3
3
Monitor Assy

Fig.6

● Removing the Monitor PCB 2/2 (Fig.7)

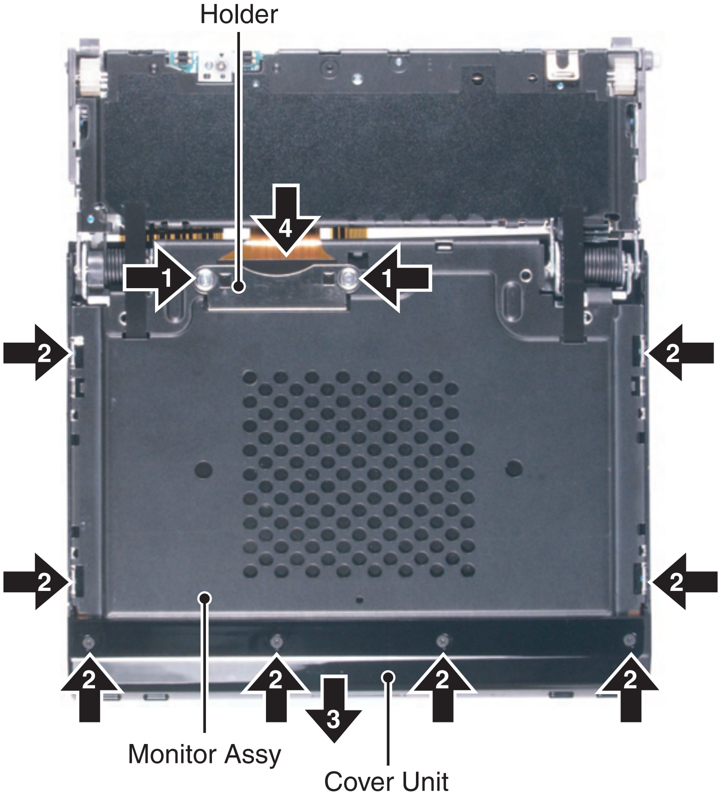
1 Remove the two screws and then remove the Holder.

2 Remove the eight screws and then remove the Monitor Assy.

3 Remove the Cover Unit.

4 Disconnect the connector.

[Caution]
The Monitor Assy cannot be removed unless the Cover Unit is removed in advance after removing the screws.


Holder
4
1
1
2
2
2
2
2
2
2
2
3
Monitor Assy
Cover Unit

5 Disconnect the three connectors and then remove the Monitor PCB.

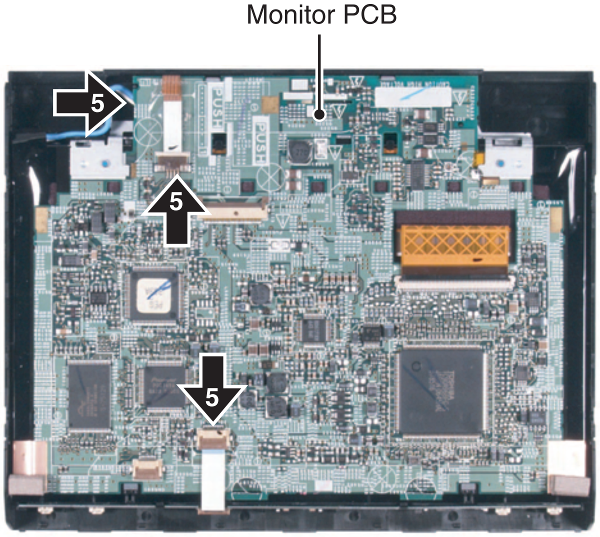

Monitor PCB
5
5
5

Fig.7

● How to hold the mechanism section (Fig 1)

1. Hold the main frame and the top frame.
2. As the mechanical strength of the front part of the top frame is not strong, do not hold this part.
3. Do not touch the switches provided on the top face of the mechanism section.
4. Be careful not to pull the flexible PCB on the side face.

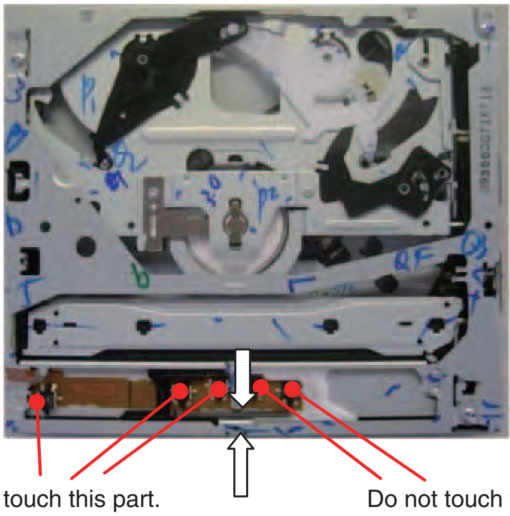
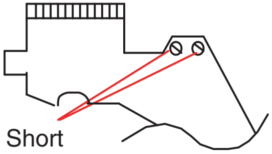

Do not touch this part.
Do not touch this part.
Do not touch this part.

Fig 1

● How to remove the module PCB (Fig 2, Fig 3)

1. Put the mechanism section in locked state (disc load standby position).
2. Hold the mechanism module with its top face down.
3. Make the lands at 2 locations on the pick up flexible PCB short.
4. Disconnect the connectors of the pick up flexible PCB and the SPDL flexible PCB.
   (Be sure to disconnect the connectors as the flexible PCB will be damaged if the PCB is removed without removing the flexible PCB.)
5. Remove the solder joint of the lead wire of the load motor and the clamp SW.
6. Remove the two screws, and then remove the module PCB.
   (Lift up point A slightly and remove it toward B direction. Be careful as the point C is connected with a flexible PCB.)
7. Disconnect the connector of the 8-12 detection flexible PCB from the PCB.

Fig 2



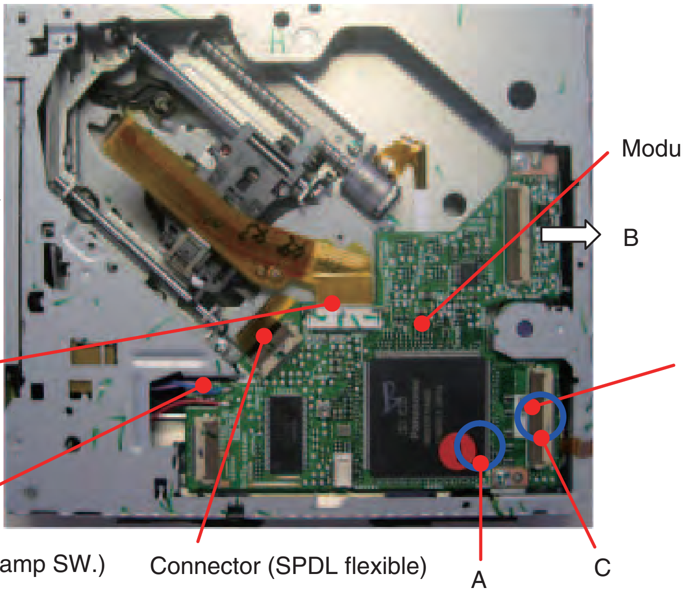

Module PCB
B
Connector
(pick up flexible)
Connector
(8-12 detection flexible)
Solder land
(load motor, lead wire of the clamp SW.)
Connector (SPDL flexible)
A
C

Fig 3

● How to remove the CRG motor assy (Fig 4)

1. Remove the module PCB according to the instructions in “How to remove the module PCB”.
2. Remove the Mylar tape.
3. Remove the flexible PCB of the CRG motor from the connector of the spindle motor.
4. Remove the two screws, and then remove the CRG motor assy.

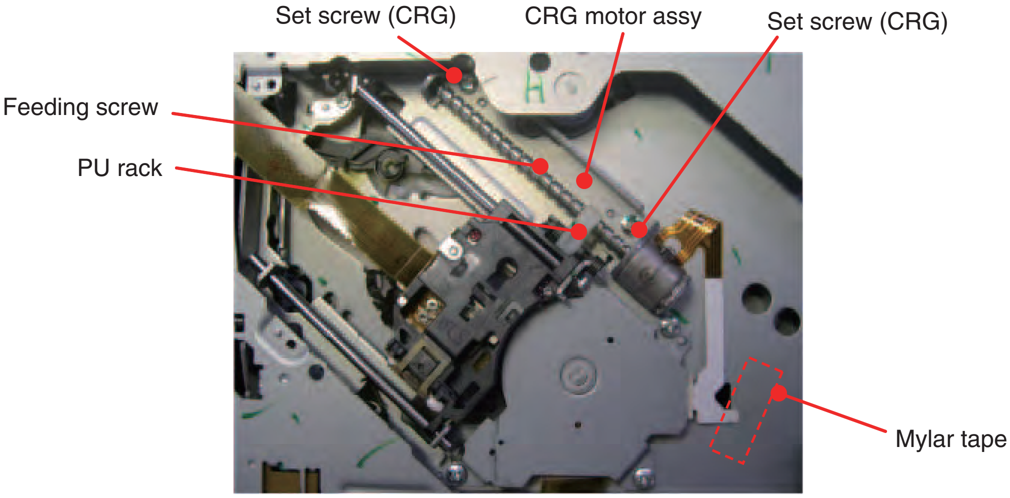

Set screw (CRG)
CRG motor assy
Set screw (CRG)
Feeding screw
PU rack
Mylar tape

Fig 4

● How to remove the PU unit (Fig 5)

1. Remove the module PCB according to the instructions in “How to remove the module PCB”.
2. Hang the main shaft holding spring to the CRG chassis temporary hanger.
3. Remove the CRG motor assy according to the instructions in “How to remove the CRG motor assy”.
4. Remove the holding plate spring of the main shaft.
5. While lifting up the tip of the pick up rack, slide the main shaft, and remove the PU unit.

(Note) When mounting the PU unit again, make sure to do the adjustments of the devices mounted thereon according to the descriptions of the service manual. Furthermore, make sure to hang the main shaft holding spring permanently.

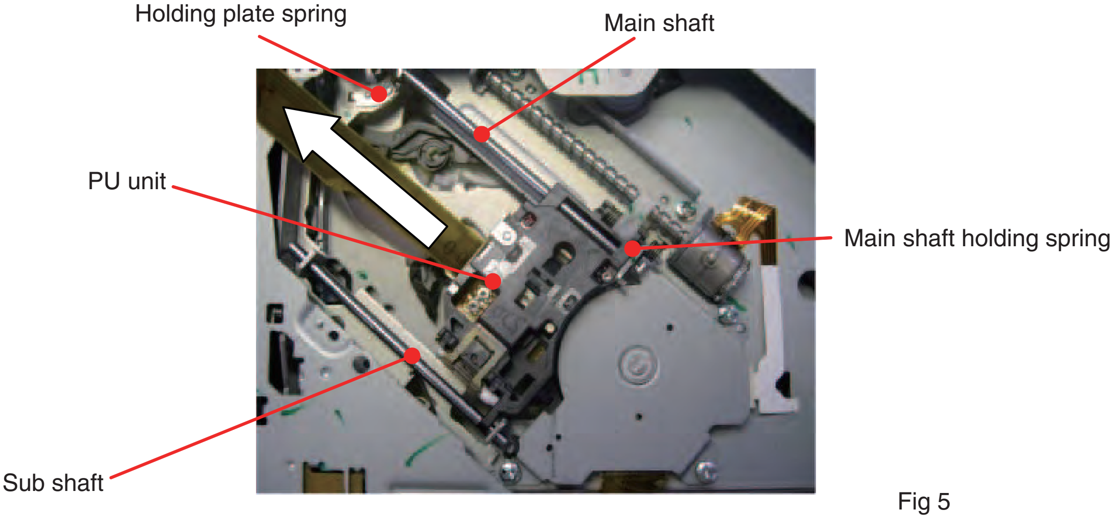
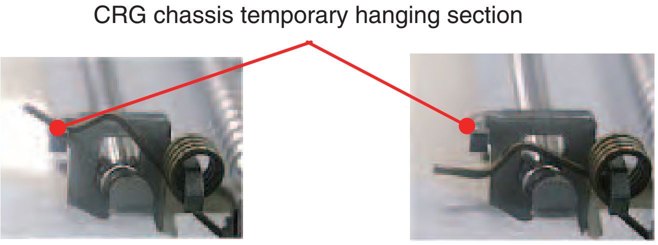

Holding plate spring
Main shaft
PU unit
Main shaft holding spring
Sub shaft

Fig 5


CRG chassis temporary hanging section

Temporary hanging

Permanent hanging

8. EACH SETTING AND ADJUSTMENT

8.1 DVD ADJUSTMENT

1) Precautions

This product uses 5 V and 3.3 V as standard voltages. The electrical potential that is the reference for signals, is not GND, but VREF (approximately 2.2 V) and VHALF (approximately 1.65 V) .

During product adjustments, if the reference voltage is mistakenly taken as GND, and a grounding contact is made, not only would it be impossible to measure the accurate electrical potential, but also the servo motor would malfunction, resulting in the application of a strong impact on the pick up. The following precautionary measures should be strictly adhered to, in order to avoid such problems.

The reference voltage and GND should not be confused when using the minus probe of a measurement device. When an oscilloscope is being used special care should be taken to make sure that the reference voltage is not connected to the probe of ch1 (on the minus side), while the probe of ch2 (on the minus side), is connected to GND. Further, since the body frame of most measurement devices have the same electrical potential as the minus side of the probe, the body frame of the measurement device should be set to floating ground.

If the reference voltage is connected to GND by mistake, turn the regulator OFF immediately, or turn the power OFF.

- Remove the filters and wires used for measurements only after the regulator has been turned OFF.
- After the power supply is turned on, regulator ON the following adjustment and measurement are promptly done.
- Whenever the product is in the test mode, the software will not take any protective action. For this reason, special care should be taken to make sure that no mechanical or electrical shock could be applied to the product when taking measurements in the test mode.
- Whenever the EJECT key is pressed to eject the disk, no other keys, other than the EJECT key, should be pressed until the disk eject action has been completed.
- Press the EJECT key only after the disk has stopped completely.
- If the product hangs up turn the power OFF immediately.
- Laser didoes may be damaged, if the volume switch for the laser power adjustment of the pick up unit, is turned.

Attention)

- Test mode starting procedure
  Reset start while pressing the ATT
  and RIGHT keys together.
- Test mode stopping procedure
  Reset or ACC OFF-ON.

● SKEW adjustment

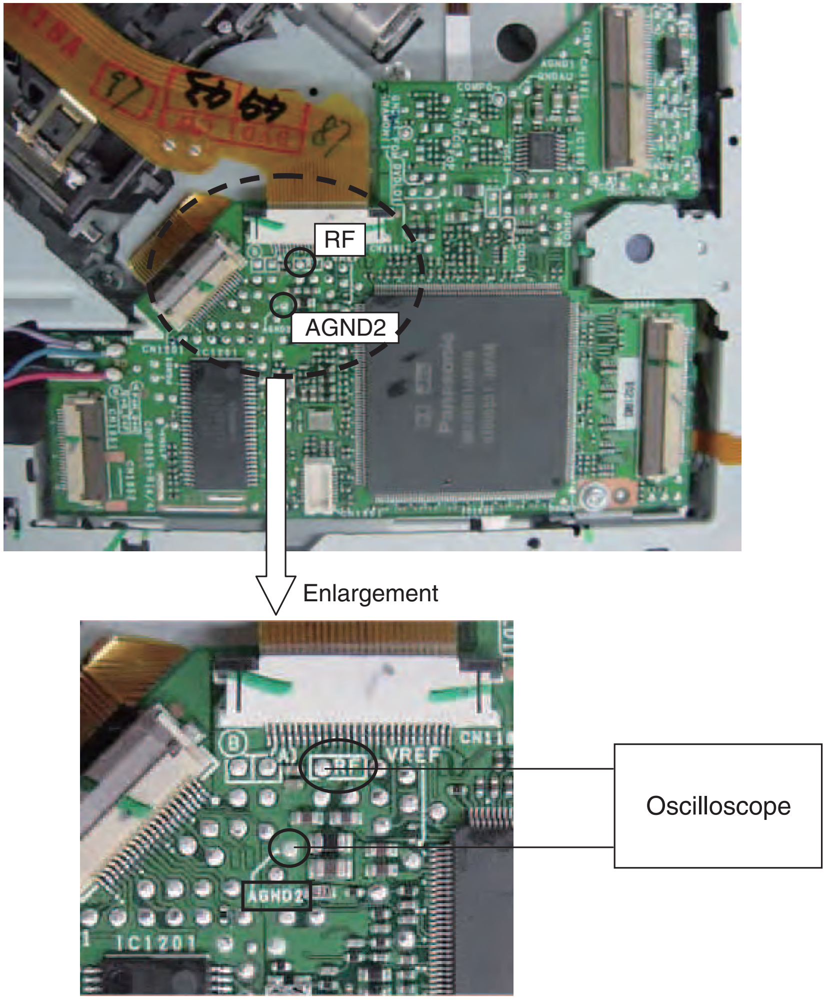
When one of the following replacements has taken place, SKEW adjustment for the pick up will be required.
(1) Replacement of the pick up unit
(2) Replacement of the spindle motor
(3) Replacement of the carriage chassis
(4) Replacement of the main shaft of the pick up unit
(5) Replacement of the sub shaft of the pick up unit

- Measurement equipment and tools/jigs: Oscilloscope
  Driver for SKEW adjustment → TORX driver (T2) (GGK1095)
  Bond for fixing the SKEW (GEM1033)
  Bond for locking the screw (Locking agents(1401M : produced by THREE BOND))

- Disc used: GGV1018

- Measurement reference: AGND2
- Measurement point: RF

- Connection drawing
  DVD core unit



Symptom in case the adjustment is not adequate: Worsening of the error rate 10^{-3}
(Normally 10^{-4} or less.)
Large RF jitter
RF waveform distortion
Tracking drawing/Unstable servo

* Caution: Do not look into the laser light during adjustment.

There are two methods for adjustment, a method whereby the adjustment is made while monitoring the RF waveform using the oscilloscope (method ①) and a method whereby the adjustment is made while checking the RF level in value by OSD (method ②).

The adjustment procedure is shown below. Refer to the paragraph for the service test mode regarding entering of the test mode and the operation procedure.

Adjustment procedure:

1. Turn the DVD mechanism module upside down so that the pick up can be adjusted.
   When the module is turned upside down, there is a possibility that the disc is rubbed.
   So, first place a coin with the thickness of approximately 1.5mm on a desk, and set the module upside down in a way that section ① in the illustration below comes right above the coin.

2. Install the pick up. (Refer to the section regarding removal of the pick up from the mechanism unit.)
   As for the precautions in handling the pick up, refer to the precautions in handling the PU as described below.

3. Method ①:
   Connect the oscilloscope by referring to the connection drawing so that the RF signal can be monitored with AGND2 as the reference.
   Method ②:
   There is no need for setting of any equipment. Proceed to step 4.

4. Turn the power ON, and load the disc for adjustment.(GGV1018)

5. After setting the disc type to DVD layer 1 in the front end test mode, turn the power ON, and move the pick up to the inner periphery. (CRG – Home)

6. Turn the LD ON.

7. Set to focus close, and make auto adjustment for all items under that state, then set to tracking close.
   And make auto adjustment for all items under that state as well.

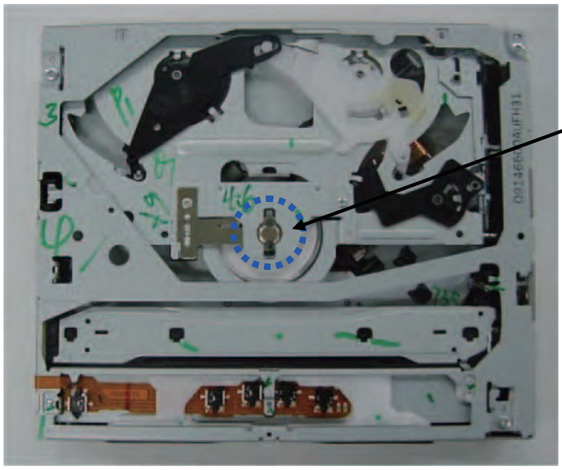
8. Make an intermediate periphery (ID: 100 000) search, and move the PU to intermediate periphery.

9. Method ①:
   Proceed to step 10.
   Method ②:
   After setting to Tracking Open, make all auto adjustments, and set to Tracking Close this time with a command that can be RF displayed. Make auto adjustment for all items under that state as well.

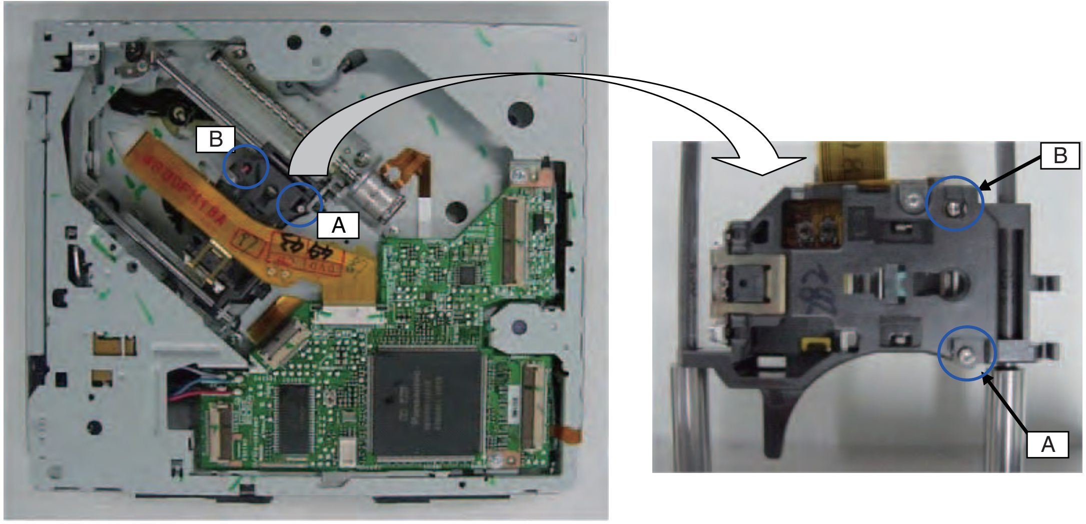
10. Use TORX driver (T2) (GGK1095) for the following.
    Method ①:
    While monitoring the RF waveform on the oscilloscope, turn SKEW adjustment screw A just a little bit in a way that the level will reach the maximum.
    While the pick up is at the intermediate periphery, turn SKEW adjustment screw B just a little bit in a way that the level will reach the maximum.
    While the pick up is at the intermediate periphery, turn SKEW adjustment screw A just a little bit in a way that the level will reach the maximum.
    (Make adjustment in the order of A -> B -> A, Please end the each adjustment by turning screw clockwise.)
    Method ②:
    While monitoring the RF level value on the OSD display, turn the SKEW adjustment screw A just a little bit in a way that the level will reach the maximum.
    While the pick up is at the intermediate periphery, turn SKEW adjustment screw B just a little bit in a way that the level will reach the maximum.
    While the pick up is at the intermediate periphery, turn SKEW adjustment screw A just a little bit in a way that the level will reach the maximum.
    (Make adjustment in the order of A -> B -> A, Please end the each adjustment by turning screw clockwise.)
    If the error is not good, please perform Method ① again.

11. Turn the power OFF in the test mode, and after confirming that the disc has stopped, eject the disc.

12. Apply adhesive for fixing the SKEW and lock the screw.
    Refer to the illustration below for the adhesion points.



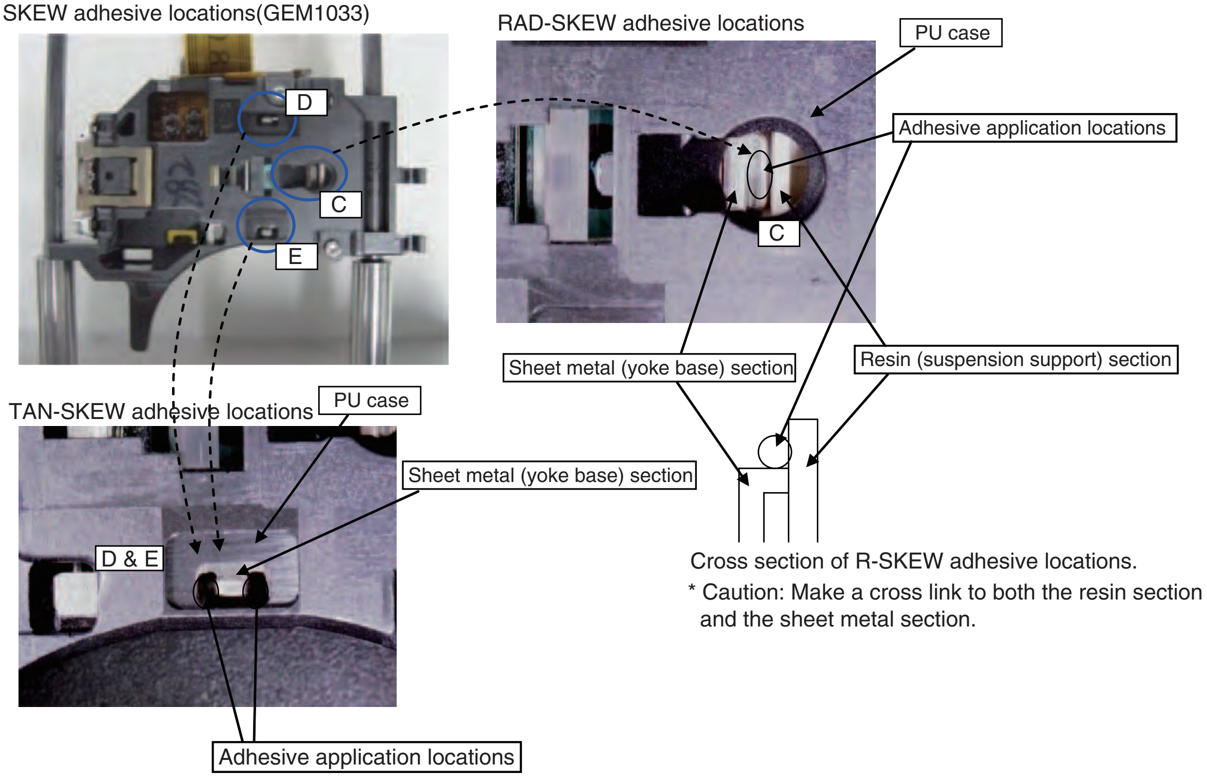
SKEW adjustment locations.



SKEW adhesive locations(GEM1033)

RAD-SKEW adhesive locations

TAN-SKEW adhesive locations

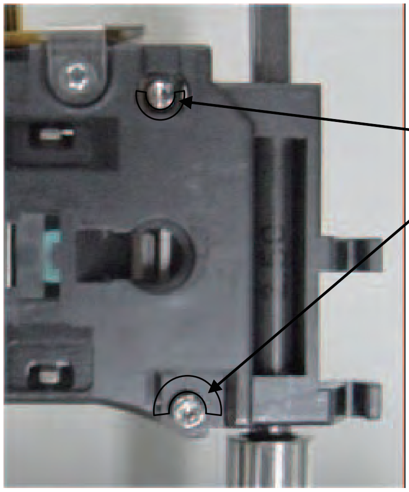

D
C
E
PU case
Adhesive application locations
C
Sheet metal (yoke base) section
Resin (suspension support) section
PU case
Sheet metal (yoke base) section
D & E
Adhesive application locations

Cross section of R-SKEW adhesive locations.

* Caution: Make a cross link to both the resin section and the sheet metal section.

* Caution: Make a cross link to both the case section and the sheet metal section.

Screw locking adhesive location(1401M : produced by THREE BOND)

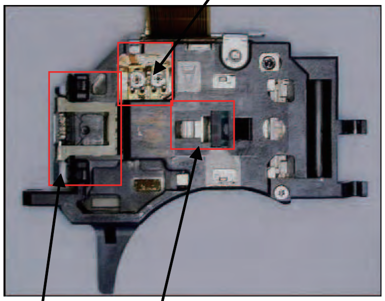


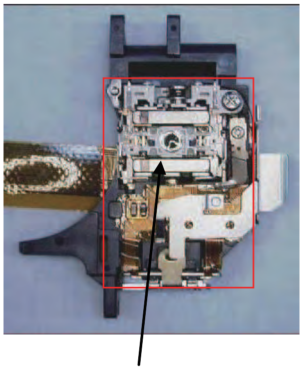
Screw locking adhesive location
Apply the locking agent for more than half of the screw head circumference.
* Caution: The locking agent shall not overflow to outside of the PU case.

Precautions in handling the PU.

* Caution: Do not touch the shaded section in the drawing below.

RF level adjustment section





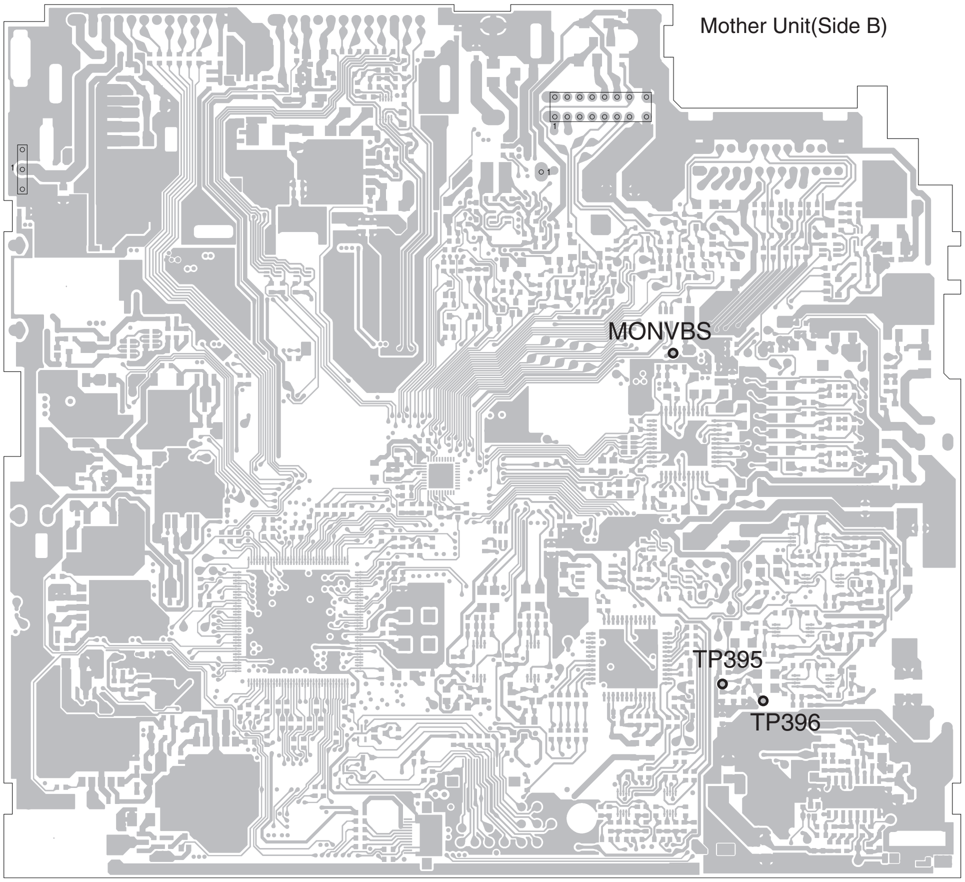
Do not touch the optical parts.

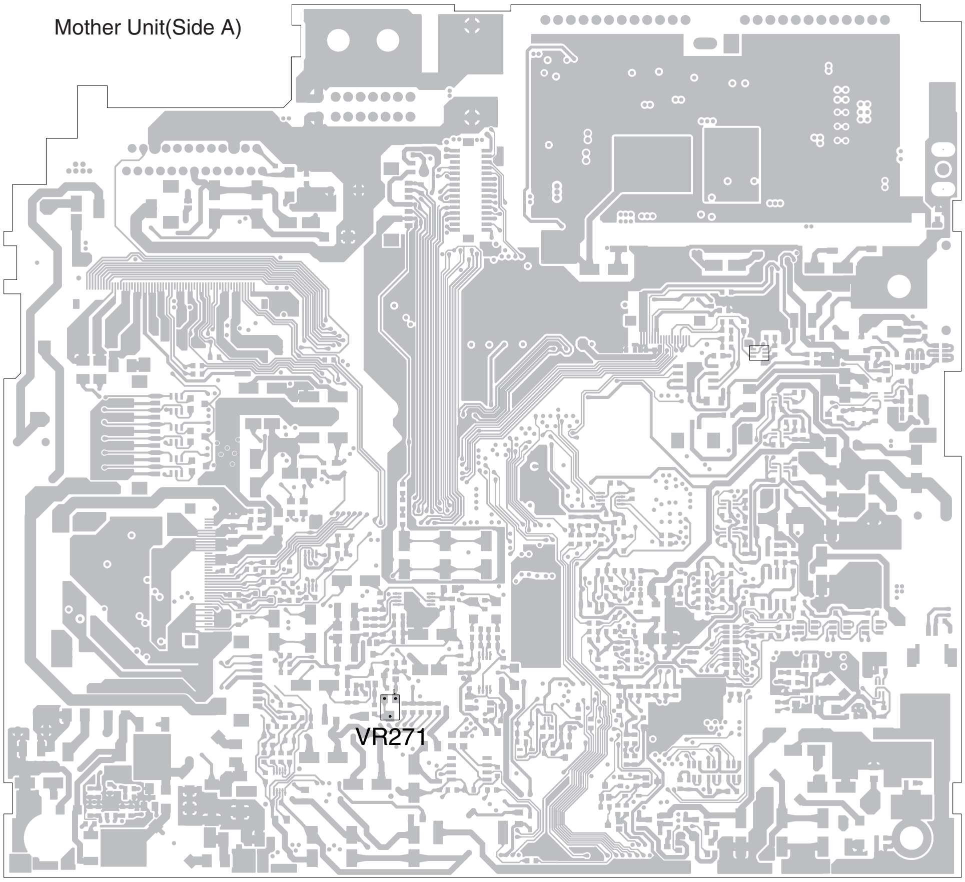
Do not touch the springs.

Hologram (be careful for the static electricity)
GRT adjustment section

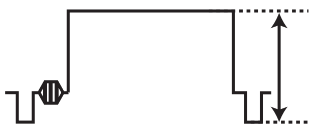
8.2 VIDEO LEVEL ADJUSTMENT

Adjustment point


Mother Unit(Side B)
MONVBS
TP395
TP396

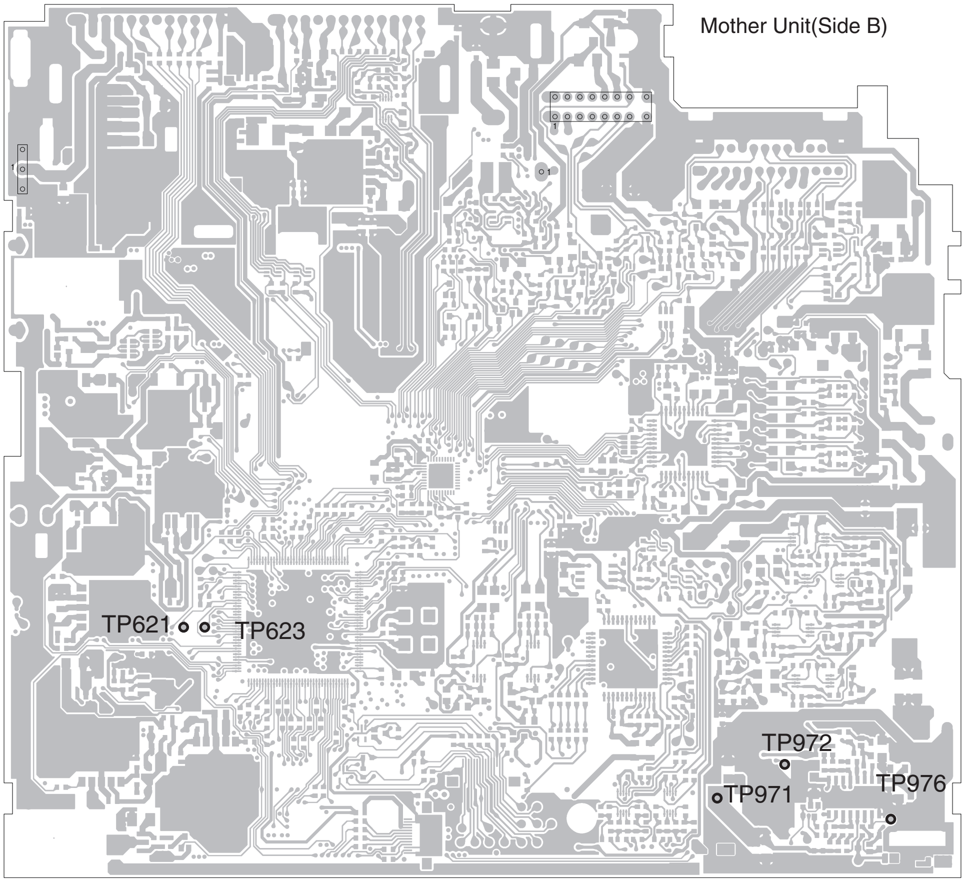

Mother Unit(Side A)
VR271

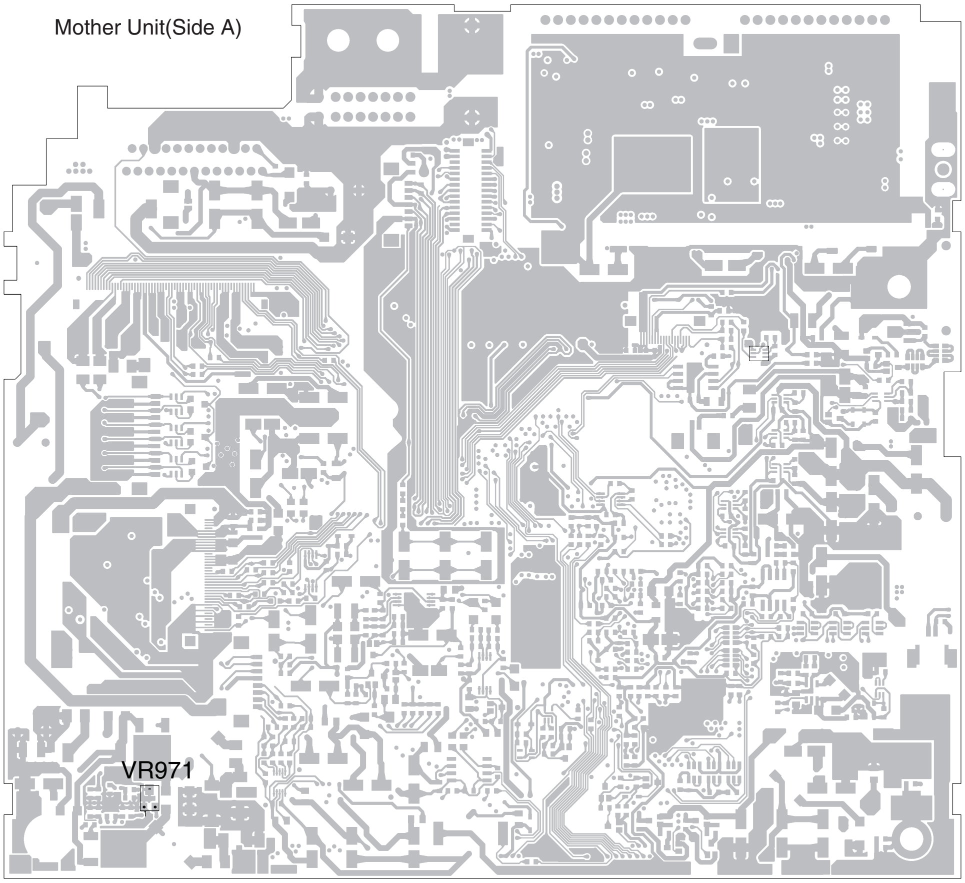
Tuning of image output: Measure level at the measuring point as shown below while DVD is being replayed.

Step	Mother PCB adjustment	Mode	Input signal (input test pin,specs, other conditions)	Output signal (measuring point, waveform)	Measuring instruments	Specs	Adjusting point
1	Main video level	AV	Input test pin: TP396····100 IRE (white 100%), 1.0 Vp-p, (input via 75 ohms) TP395····GND (VIDEO GND)	Measuring point : MONVBS 	Oscilloscope	1.35 V ± 0.05 Vp-p Measure between the sync tip and 100 IRE (top wave). Symptoms with poor adjustment. Over level : Luminance is too high. Under level : Luminance is too low.	VR271

8.3 MOTHER UNIT ADJUSTMENT

Adjustment point


Mother Unit(Side B)
TP621
TP623
TP972
TP971
TP976


Mother Unit(Side A)
VR971

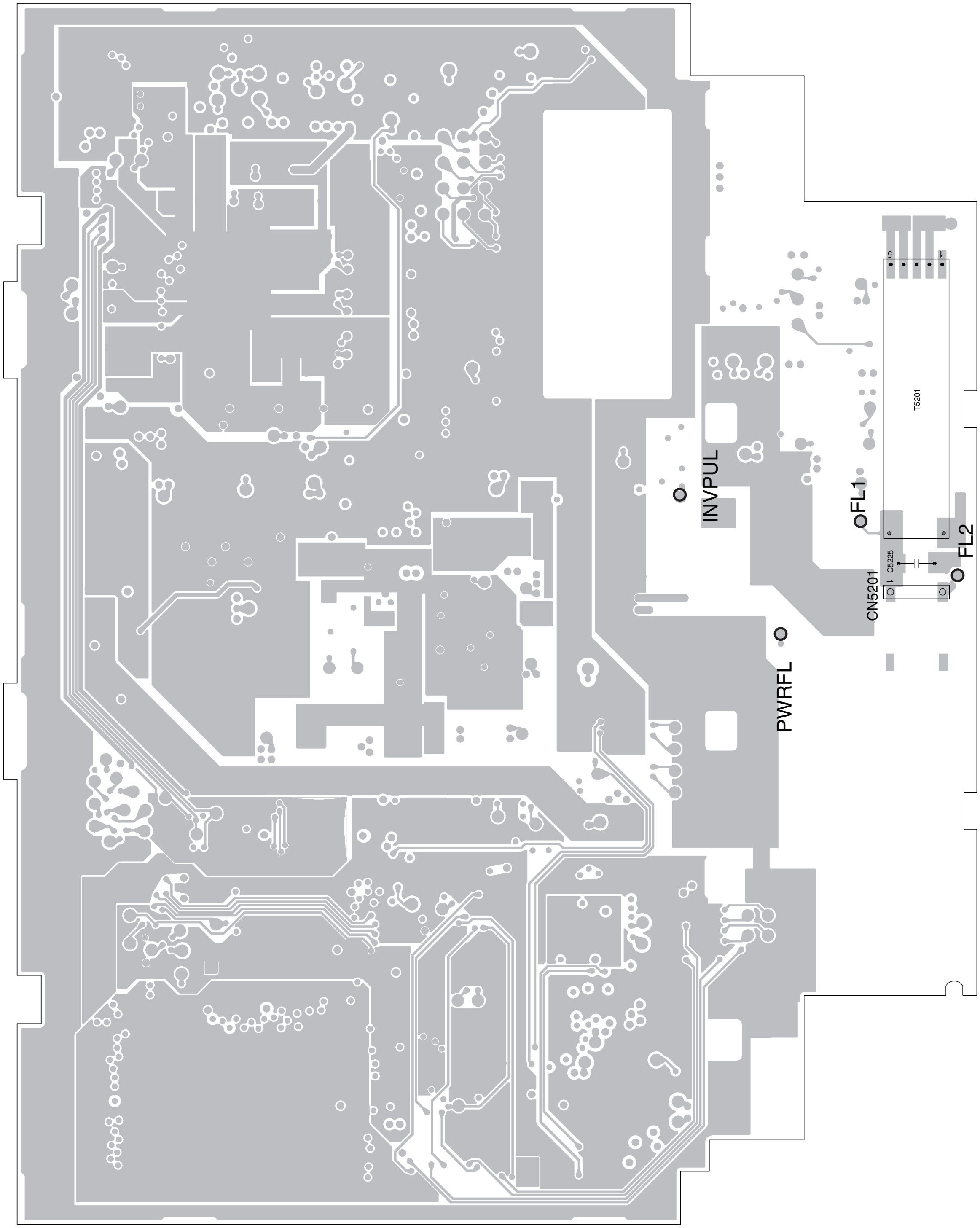
Measure with the frequency counter at the measuring point as shown below while TUNER is turned ON.

Step	Mother PCB adjustment	Mode	Input signal (input test pin,specs, other conditions)	Output signal (measuring point, waveform)	Measuring instruments	Specs	Adjusting point
1	Clock frequency Check		After the power supply is turned on, IC601 pin83(TP621) to 3.3 V	IC601 pin86(TP623)	Frequency Counter	18.874 368 MHz ± 754 Hz	
2	DC-DC converter frequency Adjustment		Connect 33 Ω (1.8 W or more) between TP 972 and GND. Connect 20 Ω (1.2 W or more) between TP 971 and GND.	TP976	Frequency Counter	370 kHz ± 5 kHz	VR841

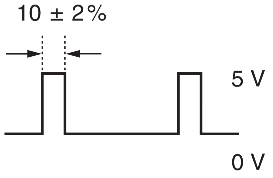
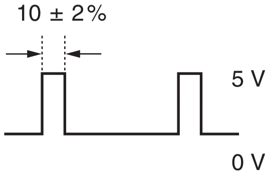
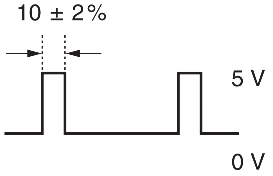
8.4 INVERTER ADJUSTMENT

Adjustment point

Monitor PCB(Side B)


INVPUL
FL1
FL2
PWRFL
CN5201
C5225
T5201
5
1
1

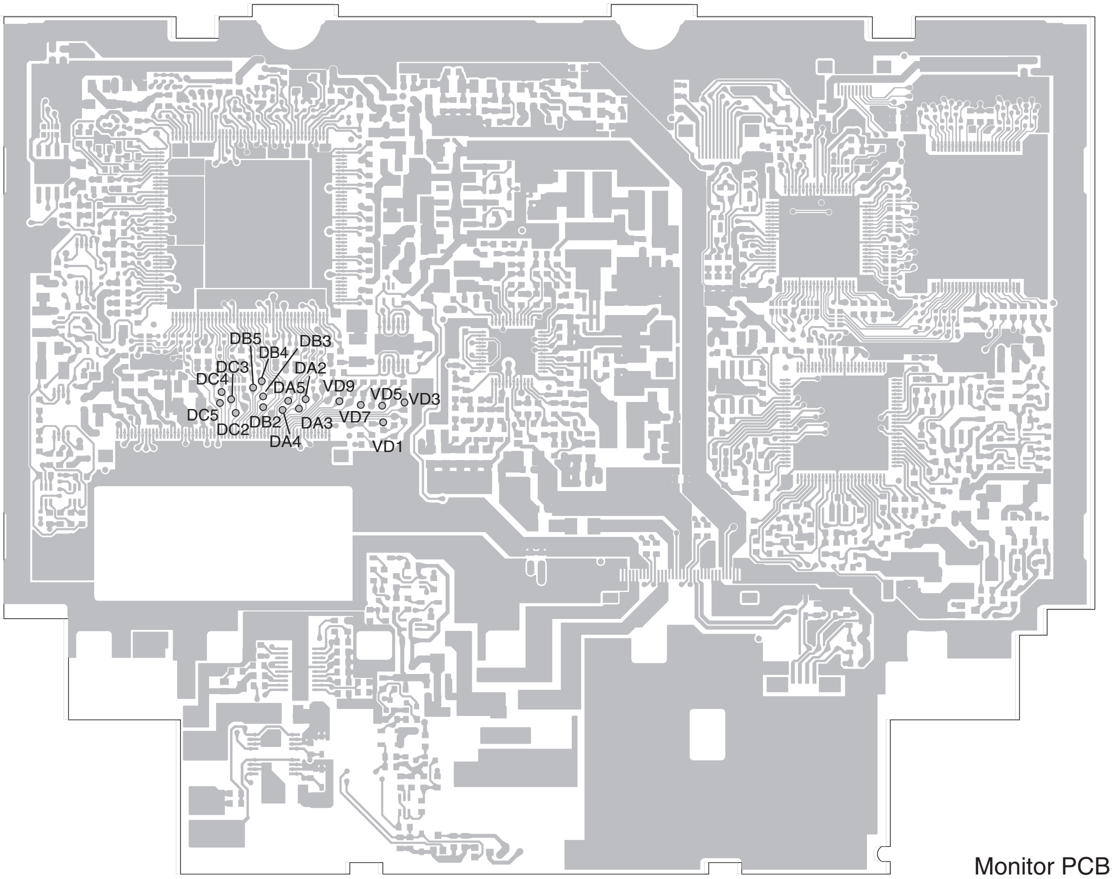
Instead of inserting LCD connector into CN5201, connect 100kΩ between TP FL1 and FL2.
Measure with the frequency counter at the measuring point as shown below.

No.	Adjustment item	Input signal	Measurement point	Adjustment point	Adjustment	Note
1	Basic drive Frequency adjustment	14.4 ± 0.2 V to TP PWRFL TP DIMDTY : GND TP FLGND : GND TP INVPUL : GND	TP FL1 TP FL2	VR5201	48.0 ± 0.1 kHz	Connect 100 kΩ between TP FL1 and FL2. Monitor the waveform after voltage division or TP FL2. Do not monitor TP FL1 directly (measurement meter may be damaged because of high voltage).
2	Check frequency switching	Input 98.0 ± 1 kHz waveform below to TP INVPUL. 	TP FL1 TP FL2	-	49.0 ± 0.5 kHz	Verify that the frequency of waveform measured in No.1 is 49 kHz.
3	Check frequency switching	Input 102.0 ± 1 kHz waveform below to TP INVPUL. 	TP FL1 TP FL2	-	51.0 ± 0.5 kHz	Verify that the frequency of waveform measured in No.1 is 51 kHz.
4	Check frequency switching	Input 104.0 ± 1 kHz waveform below to TP INVPUL. 	TP FL1 TP FL2	-	52.0 ± 0.5 kHz	Verify that the frequency of waveform measured in No.1 is 52 kHz.

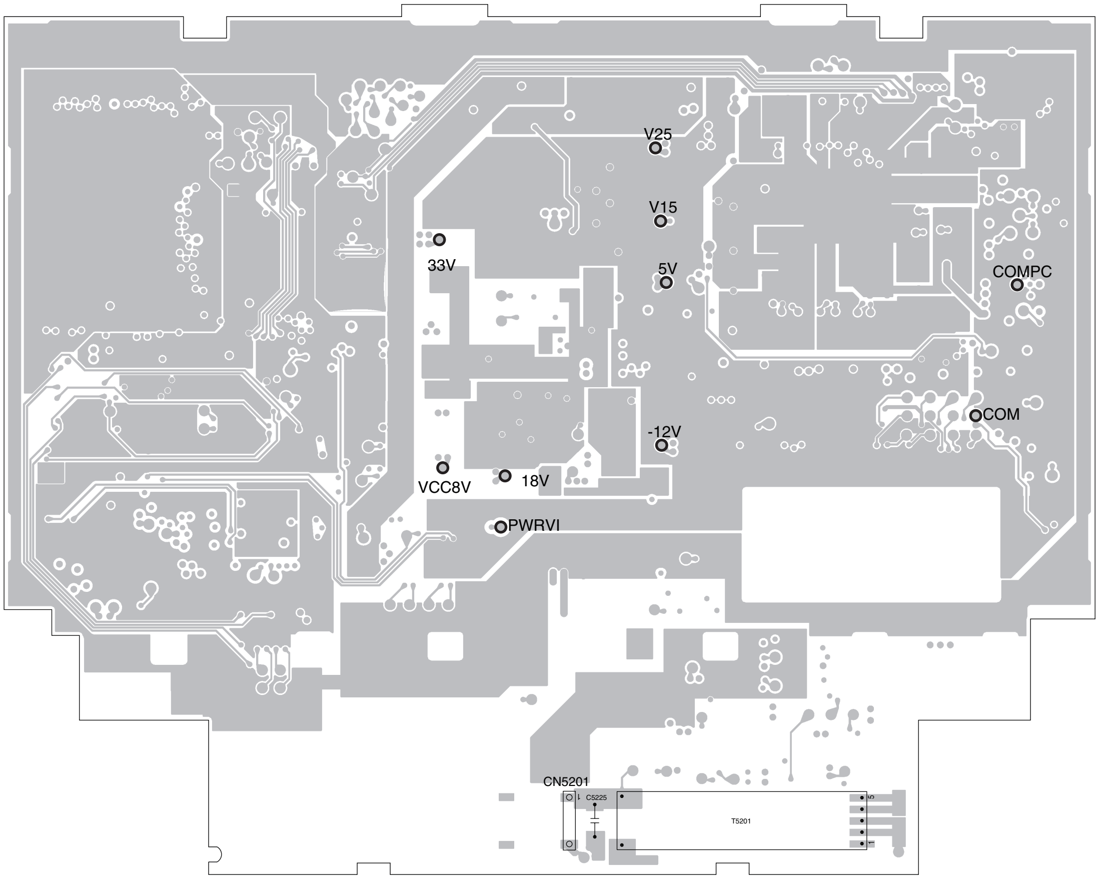
8.5 MONITOR ADJUSTMENT

Adjustment point

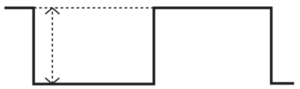
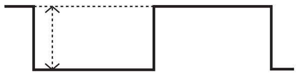
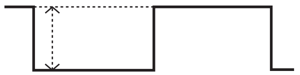
Monitor PCB(Side A)

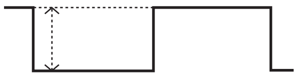
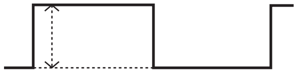
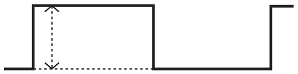
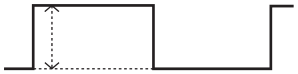
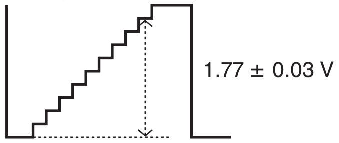

DB5
DB3
DB4
DC3
DA2
DC4
DA5
VD9
VD5
VD3
DC5
DB2
DA3
VD7
DC2
DA4
VD1

Monitor PCB(Side B)


V25
V15
33V
5V
COMPC
COM
-12V
VCC8V
18V
PWRVI
CN5201
C5225
T5201

NOTE : When shutting off the power supply of TC90A96BFG-P, be careful not to energize each IC terminal. However, IIC lines (SDA and SCL) is not included in this case and it is possible to energize them with up to 5 V.

No.	Adjustment item	Input signal	Measurement point	Adjustment point	Adjustment	Note
1	Check 3.3 V power supply voltage	TP:PWRVI to 14.4 V	TP:33V	-	33V = 3.3 ± 0.25 V	
2	Check 2.5 V power supply voltage	TP:PWRVI to 14.4 V	TP:V25	-	V25 = 2.5 ± 0.15 V	
3	Check 1.5 V power supply voltage	TP:PWRVI to 14.4 V	TP:V15	-	V15 = 1.5 ± 0.08 V	
4	Check 5 V power supply voltage	TP:PWRVI to 14.4 V	TP:5V	-	5V = 4.9 ± 0.3 V	
5	Check 8 V power supply voltage	TP:PWRVI to 14.4 V	TP:VCC8V	-	VCC8V = 8.0 ± 0.5 V	
6	Check 18.5 V power supply voltage	TP:PWRVI to 14.4 V	TP:18V	-	18V = 18.5 ± 0.5 V	
7	Check -12 V power supply voltage	TP:PWRVI to 14.4 V	TP:-12V	-	-12V = -12.0 ± 0.6 V	
8	Vcom amplifier output amplitude check	No definition.	TP:COM	-	4.70 ± 0.10 V 	Connect LCD panel for measurement.
9	Tone voltage amplitude check V1	No definition.	TP:VD1	-	4.20 ± 0.30 V 	Connect LCD panel for measurement.
10	Tone voltage amplitude check V3	No definition.	CN5501 55pin (TP:VD3)	-	1.75 ± 0.10 V 	Connect LCD panel for measurement.

No.	Adjustment item	Input signal	Measurement point	Adjustment point	Adjustment	Note
11	Tone voltage amplitude adjustment V5	INo definitiont.	TP:VD5	-	0.35 ± 0.10 V 	It connects with the LCD panel and it measures it.
12	Tone voltage amplitude adjustment V7	No definition.	TP:VD7	-	0.60 ± 0.10 V 	It connects with the LCD panel and it measures it.
13	Tone voltage amplitude adjustment V9	No definition.	TP:VD9	-	3.30 ± 0.20 V 	It connects with the LCD panel and it measures it.
14	Check RGB digital output	Input white 100% signal from IC5802	TP CCR,CCG,CCB	-	0.70 ± 0.05 V 	(When OSD is displayed in EEPROM adjustment mode, LOW output is mixed to the parts where there is a character.)
15	Image check of RGB signal	Input Color-bar signal from IC5802	Screen	-	-	
16	Composite level adjustment	Input composite image 10-step signal to TP MONVBS (1.35 Vpp ± 1%)	DAC output	Resistor setting of SA13h D5 - 0	The amplitude of the 9-step and the 0-step is 1.77 ± 0.05 V. 	

No.	Adjustment item	Input signal	Measurement point	Adjustment point	Adjustment	Note
17	Image check	Input composite image lamp signal (monochrome) to TP MONVBS	Screen	-	Make sure that tone changes smoothly, and there is no colored area in the entire display.	Execute to verify that IC5401 digital-out is not bridged or “OPEN” ed.
18	Aging	No definition.	-	-	Leave for more than 30 minutes in operation mode.	Input white 100% signal
19	Flicker adjustment	Input black-white reverse signal per 1 line from IC5802	Screen	TP COMDC DC output	Adjust the flicker level to minimum from all directions.	Black-white reverse signal can be the input to TP MONVBS (however, adjustment in RGB comes first). Brightness level of reverse signal should be 50%. Adjustment point can be COM DC of flicker adjustment mode.

SA✻✻h in this chart means the sub-address of TC90A96BFG-P.

Memory item list and EEPROM

<table>
<tr><th></th><th>ADDRESS</th><th>Bit15</th><th>Bit14</th><th>Bit13</th><th>Bit12</th><th>Bit11</th><th>Bit10</th><th>Bit9</th><th>Bit8</th><th>Bit7</th><th>Bit6</th><th>Bit5</th><th>Bit4</th><th>Bit3</th><th>Bit2</th><th>Bit1</th><th>Bit0</th></tr>
<tr><td rowspan="6">RELATED DIMMER</td><td>00h</td><td colspan="8">Outside light of dimmer adjustment coordinates (high)</td><td colspan="8">Backlight of dimmer adjustment coordinates (high)</td></tr>
<tr><td>01h</td><td colspan="8">Outside light of dimmer adjustment coordinates (middle)</td><td colspan="8">Backlight of dimmer adjustment coordinates (middle)</td></tr>
<tr><td>02h</td><td colspan="8">Outside light of dimmer adjustment coordinates (low)</td><td colspan="8">Backlight of dimmer adjustment coordinates (low)</td></tr>
<tr><td>03h</td><td colspan="8">Outside light threshold for dimmer (high)</td><td colspan="8">Outside light threshold for dimmer (low)</td></tr>
<tr><td>04h</td><td colspan="8">Maximum value of backlight output</td><td colspan="8">Minimum value of backlight output</td></tr>
<tr><td>05h</td><td colspan="16">Checksum</td></tr>
<tr><td>RELATED PIP (Dot adjustment system)</td><td>06h-09h</td><td colspan="8">Don't care</td><td colspan="8">Don't care</td></tr>
<tr><td rowspan="34">RELATED PIP (Last memory value)</td><td>0Ah</td><td colspan="8">Common reverse output DC center value</td><td colspan="8">Common reverse output amplitude adjustment value</td></tr>
<tr><td>0Bh</td><td colspan="2">Don't care</td><td colspan="6">Brightness R</td><td colspan="8"></td></tr>
<tr><td>0Ch</td><td colspan="2">Don't care</td><td colspan="6">Brightness G</td><td colspan="8"></td></tr>
<tr><td>0Dh</td><td colspan="2">Don't care</td><td colspan="6">Brightness B</td><td colspan="8"></td></tr>
<tr><td>0Eh</td><td colspan="10">Don't care</td><td colspan="6">Main Y contrast</td></tr>
<tr><td rowspan="2">0Fh</td><td colspan="2" rowspan="2">Don't care</td><td colspan="6">Main horizontal enhancer</td><td colspan="6">Main vertical enhancer</td><td colspan="2" rowspan="2">Don't care</td></tr>
<tr><td colspan="2">Gain</td><td colspan="2">Limiter</td><td></td><td>fo</td><td colspan="2">Gain</td><td colspan="2">Replicate</td><td colspan="2">Coring</td></tr>
<tr><td>10h</td><td colspan="2"></td><td colspan="8">Don't care</td><td colspan="6">Sub Y contrast</td></tr>
<tr><td rowspan="2">11h</td><td colspan="2" rowspan="2">Don't care</td><td colspan="6">Sub horizontal enhancer</td><td colspan="6">Sub vertical enhancer</td><td colspan="2" rowspan="2">Don't care</td></tr>
<tr><td colspan="2">Gain</td><td colspan="2">Limiter</td><td></td><td>fo</td><td colspan="2">Gain</td><td colspan="2">Replicate</td><td colspan="2">Coring</td></tr>
<tr><td>12h</td><td>γ setting ON/OFF</td><td colspan="3">RGB simultaneous γ slope A</td><td colspan="4">R output DC offset</td><td colspan="2">Don't care</td><td colspan="6">RGB simultaneous γ1 inflection point</td></tr>
<tr><td>13h</td><td colspan="3">RGB simultaneous γ slope B</td><td colspan="5">RGB simultaneous γ2 inflection point</td><td colspan="3">RGB simultaneous γ slope C</td><td colspan="5">RGB simultaneous γ3 inflection point</td></tr>
<tr><td>14h</td><td colspan="4">Don't care</td><td colspan="4">G output DC offset</td><td colspan="8">Don't care</td></tr>
<tr><td>15h</td><td colspan="4">Don't care</td><td colspan="4">B output DC offset</td><td colspan="8">Don't care</td></tr>
<tr><td>16h</td><td colspan="8">SA24h UPPER</td><td colspan="8">SA24h LOWER</td></tr>
<tr><td>17h</td><td colspan="8">SA25h UPPER</td><td colspan="8">SA25h LOWER</td></tr>
<tr><td>18h</td><td colspan="8">SA26h UPPER TV</td><td colspan="8">SA26h LOWER TV</td></tr>
<tr><td>19h</td><td colspan="8">SA26h UPPER</td><td colspan="8">SA26h LOWER</td></tr>
<tr><td>1Ah</td><td colspan="8">SA27h UPPER TV</td><td colspan="8">SA27h LOWER TV</td></tr>
<tr><td>1Bh</td><td colspan="8">SA27h UPPER</td><td colspan="8">SA27h LOWER</td></tr>
<tr><td>1Ch</td><td colspan="8">SA46h UPPER</td><td colspan="8">SA46h LOWER</td></tr>
<tr><td>1Dh</td><td colspan="8">SA47h UPPER</td><td colspan="8">SA47h LOWER</td></tr>
<tr><td>1Eh</td><td colspan="8">SA48h UPPER</td><td colspan="8">SA48h LOWER</td></tr>
<tr><td>1Fh</td><td colspan="8">SA49h UPPER</td><td colspan="8">SA49h LOWER</td></tr>
<tr><td>20h</td><td colspan="8">SA4Ah UPPER</td><td colspan="8">SA4Ah LOWER</td></tr>
<tr><td>21h</td><td colspan="8">SA4Bh UPPER</td><td colspan="8">SA4Bh LOWER</td></tr>
<tr><td>22h</td><td colspan="8">SA4Ch UPPER</td><td colspan="8">SA4Ch LOWER</td></tr>
<tr><td>23h</td><td colspan="8">SA4Dh UPPER</td><td colspan="8">SA4Dh LOWER</td></tr>
<tr><td>24h</td><td colspan="8">SA4Eh UPPER</td><td colspan="8">SA4Eh LOWER</td></tr>
<tr><td>25h</td><td colspan="8">SA4Fh UPPER</td><td colspan="8">SA4Fh LOWER</td></tr>
<tr><td>26h-2Bh</td><td colspan="5">Don't care</td><td colspan="2">Main SYNC IN sampling</td><td>Main PLL3 gain down</td><td colspan="8">Main H-PLL3</td></tr>
<tr><td>2Ch,2Dh</td><td colspan="8">Don't care</td><td colspan="8">Don't care</td></tr>
<tr><td>2Eh</td><td colspan="8">Flicker adjustment result</td><td colspan="8">Don't care</td></tr>
<tr><td>2Fh</td><td colspan="16">Checksum</td></tr>
<tr><td>RELATED PIP (Dot adjustment system --- Factory shipment value)</td><td>30h-33h</td><td colspan="8">Don't care</td><td colspan="8">Don't care</td></tr>
</table>

	ADDRESS	Bit15	Bit14	Bit13	Bit12	Bit11	Bit10	Bit9	Bit8	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
Touch correction value (Factory shipment value)	34h	Touch panel X coordinate 1								Touch panel Y coordinate 1							
	35h	Touch panel X coordinate 2								Touch panel Y coordinate 2							
	36h	Touch panel X coordinate 3								Touch panel Y coordinate 3							
	37h	Touch panel X coordinate 4								Touch panel Y coordinate 4							
	38h	Touch panel X coordinate 5								Touch panel Y coordinate 5							
	39h	Touch panel X coordinate 6								Touch panel Y coordinate 6							
	3Ah	Touch panel X coordinate 7								Touch panel Y coordinate 7							
	3Bh	Touch panel X coordinate 8								Touch panel Y coordinate 8							
	3Ch	Touch panel X coordinate 9								Touch panel Y coordinate 9							
	3Dh	Touch panel X coordinate 10								Touch panel Y coordinate 10							
	3Eh	Touch panel X coordinate 11								Touch panel Y coordinate 11							
	3Fh	Touch panel X coordinate 12								Touch panel Y coordinate 12							
	40h	Touch panel X coordinate 13								Touch panel Y coordinate 13							
	41h	Touch panel X coordinate 14								Touch panel Y coordinate 14							
	42h	Touch panel X coordinate 15								Touch panel Y coordinate 15							
	43h	Touch panel X coordinate 16								Touch panel Y coordinate 16							
	44h	Don't care								Touch panel calibration adjustment result							
	45h	Checksum															
Touch outermost circumference correction value (Factory shipment value)	46h	Outermost circumference X min								Outermost circumference Y min							
	47h	Outermost circumference X max								Outermost circumference Y max							
	48h	Don't care								Touch panel outermost circumference adjustment result							
	49h	Checksum															
Touch outermost circumference correction value	4Ah	Outermost circumference X min coordinate value for correction								Outermost circumference Y min coordinate value for correction							
	4Bh	Outermost circumference X max coordinate value for correction															
	4Ch	Outermost circumference Y max coordinate value for correction															
	4Dh	Checksum															
Touch correction coordinates (User calibration value)	4Eh	(USER)Touch panel X coordinate 1								(USER)Touch panel Y coordinate 1							
	4Fh	(USER)Touch panel X coordinate 2								(USER)Touch panel Y coordinate 2							
	50h	(USER)Touch panel X coordinate 3								(USER)Touch panel Y coordinate 3							
	51h	(USER)Touch panel X coordinate 4								(USER)Touch panel Y coordinate 4							
	52h	(USER)Touch panel X coordinate 5								(USER)Touch panel Y coordinate 5							
	53h	(USER)Touch panel X coordinate 6								(USER)Touch panel Y coordinate 6							
	54h	(USER)Touch panel X coordinate 7								(USER)Touch panel Y coordinate 7							
	55h	(USER)Touch panel X coordinate 8								(USER)Touch panel Y coordinate 8							
	56h	(USER)Touch panel X coordinate 9								(USER)Touch panel Y coordinate 9							
	57h	(USER)Touch panel X coordinate 10								(USER)Touch panel Y coordinate 10							
	58h	(USER)Touch panel X coordinate 11								(USER)Touch panel Y coordinate 11							
	59h	(USER)Touch panel X coordinate 12								(USER)Touch panel Y coordinate 12							
	5Ah	(USER)Touch panel X coordinate 13								(USER)Touch panel Y coordinate 13							
	5Bh	(USER)Touch panel X coordinate 14								(USER)Touch panel Y coordinate 14							
	5Ch	(USER)Touch panel X coordinate 15								(USER)Touch panel Y coordinate 15							
	5Dh	(USER)Touch panel X coordinate 16								(USER)Touch panel Y coordinate 16							
	5Eh	Don't care								(USER)Touch panel outermost circumference adjustment result							
Touch outermost circumference value (User calibration value)	5Fh	(USER)Outermost circumference X min								(USER)Outermost circumference Y min							
	60h	(USER)Outermost circumference X max								(USER)Outermost circumference Y max							
	61h	Don't care								(USER)Touch panel outermost circumference adjustment result							
AD correction touch	62h	Touch AD correction value X coordinates								Touch AD correction value Y coordinates							
	63h	(USER)Touch AD correction value X coordinates								(USER)Touch AD correction value Y coordinates							
Others	64h	EEPROM completion								EJECT lock status value							

8.6 MONITOR TEST MODE

[Outline]

It is a mode used to adjust each preset value stored in the EEPROM for storing the preset values.
The adjusted values are stored in the EEPROM for storing the preset values.

[Method for Mode IN]

The method for Mode IN varies depending on the operational environment.

- When operated as a unit
  Reset the monitor micro computer while the [STEST1] terminal is set to Low and the [EPRTEST] terminal is set to Low.
- When operated as a product
  Reset the monitor micro computer while the [STEST1] terminal is set to High and the [EPRTEST] terminal is set to Low.
  Or, turn the power ON while pressing DISP key and FLIP DOWN key.

[Basic explanation on each menu]

- In the "setting content", adjustment range, initial value, and displayed character string of the items preset in each menu are described.

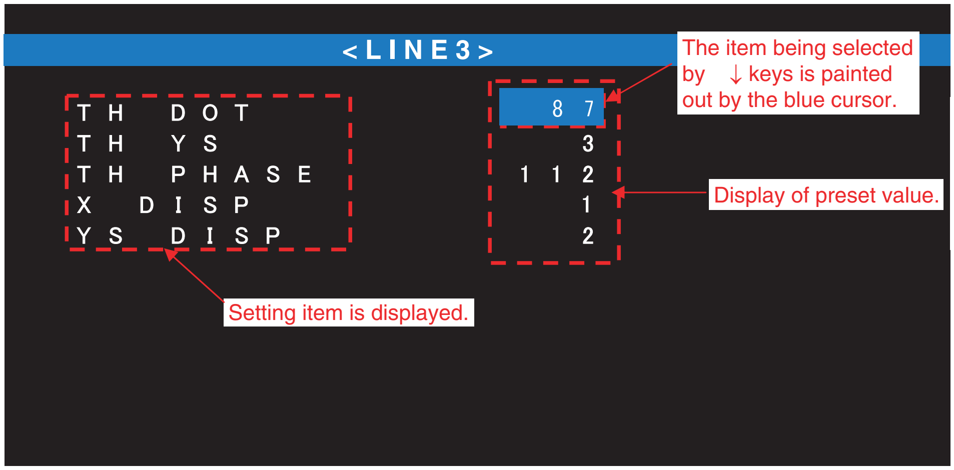
[Example) Setting content]

Setting item		Adjustment range	Initial value
Content	Displayed character string		
Dot search threshold	TH DOT	0-255	112
YS search threshold	TH YS	0-4	3
Phase search threshold	TH PHASE	0-255	112
X disp	X DISP	0-63	32
YS disp	YS DISP	0-4	2

Character string displayed on the screen.

- In the "display specifications", the screen actually displayed under each menu is explained.
  Display example is shown below for explanation.

[Example) Display specifications]



<LINE3>

TH DOT 87
TH YS 3
TH PHASE 112
X DISP 1
YS DISP 2

The item being selected by ↓ keys is painted out by the blue cursor.

Display of preset value.

Setting item is displayed.

- Cursor color
  When accessing normally to EEPROM:
  The cursor color will change blue → red → blue.
  (The bule color continues for the convenience of the display cycle.But it is not an error.)
  When accessing abnormally to EEPROM(error):
  The cursor color will stay red (blue → red → red) even if the key is released.
  Note) When a value is changed continuously, the cursor color may change blue → red → red → ... → blue.
  But it is not an error.
  (The red color continues for the convenience of the display cycle.)

[Flicker adjustment menu]

[Setting content]

Setting item		Adjustment range	Initial value
Content	Displayed character string		
Common inverted output center value	COM DC	0-255	92

[Line adjustment 1 menu]

[Setting content]

Setting item		Adjustment range	Initial value
Content	Displayed character string		
Bright	BRIGHT	0-255	150
RGB simultaneous contrast(SA0C[D7-0])	CONTRAST	0-255	168
Common inverted output amplitude adjusted value	COM AMP AJ	0-255	150
R output DC offset(SA1A[D11-8])	ROUT BIAS	0-15	8
G output DC offset(SA1C[D11-8])	GOUT BIAS	0-15	8
B output DC offset(SA1E[D11-8])	BOUT BIAS	0-15	8
Main Y contrast(SA0F[D5-0])	RGB CNTRST	0-63	34
Sub Y contrast(SA13[D5-0])	CMP CNTRST	0-63	26
Dither bit(SA0D[D15])	DITHER BIT	0-1	0(OFF)

- The bright value is determined by the image quality setting table based on the user setting step and the common inverted output amplitude adjusted value (COM AMPAJ).
  This bright value controls the output of [DACDI] of the monitor micro computer terminal.
  Supplement 1) When the bright value is changed in the test mode, however, it will not be reflected in the user setting step value.
  Supplement 2) In the test mode during monitor unit operation, the user setting step will not be reflected in the bright value calculation.

Note 1... The "black density (=bright)" adjustment by the user is accomplished only by controlling the common inverted output amplitude, and the brightness of the double window IC is not used.
Note 2... The content of bright and of RGB simultaneous contrast are reference values (adjustable though) only when adjusting other items, and are not stored in the EEPROM.
Note 3... Be careful as the content of R(G/B) output DC offset, main Y contrast and sub Y contrast are different between the displayed values (EEPROM written values) and the register setting values in the double window IC.
(Because the relationship between the double window IC register value and the screen output value is not linear, there is a need for conversion by software.)

The cases where the displayed value (EEPROM written values) and the register setting values in the double window IC are different are summarized below.

[R(G/B) output DC offset]

Displayed value (=adjusted value) (DEC)	EEPROM written value (DEC)	Double window IC register value (BIN)	
15	15	0111	(MAX)
14	14	0110	
:	:	:	
9	9	0001	
8	8	0000	(TYP)
7	7	11111	
:	:	:	
1	1	1001	
0	0	1000	(MIN)

[Main Y contrast, sub Y contrast]

Displayed value (=adjusted value) (DEC)	E2PROM written value (DEC)	Double window IC register value (BIN)	
63	63	011111	(MAX)
62	62	011110	
:	:	:	
33	33	000001	
32	32	000000	(TYP)
31	31	111111	
:	:	:	
1	1	100001	
0	0	100000	(MIN)

[Line adjustment 2 menu]

[Setting content]

Setting item		Adjustment range	Initial value
Content	Displayed character string		
RGB & YS horizontal positioning(SA2B[D15-8])	DOT H POSIT	0-255	63
YS sampling phase 1(SA2D[D15-12])	YS SAMPL	0-15	12
AD sampling phase B(SA2D[D11-8])	B SAMPL	0-15	12
AD sampling phase G(SA2D[D7-4])	G SAMPL	0-15	12
AD sampling phase R(SA2D[D3-0])	R SAMPL	0-15	12
YS internal delay adjustment(SA2F[D3-0])	YS DELAY	0-15	12

Note 1... Be careful as the displayed value (EEPROM written value) and the register setting values in the double window IC are different for the following items.
(Because the relationship between the double window IC register value and the screen output value is not linear, there is a need for conversion by software.)

- **YS sampling phase 1**
- **AD sampling phase B**
- **AD sampling phase G**
- **AD sampling phase R**
- **YS internal delay adjustment**

The cases where the displayed value (EEPROM written values) and the register setting values in the double window IC are different are summarized below.

[YS sampling phase 1, AD sampling phase B/G/R, YS internal delay adjustment]

Displayed value (=adjusted value) (DEC)	E2PROM written value (DEC)	Double window IC register value (BIN)	
15	15	0111	(MAX)
14	14	0110	
:	:	:	
9	9	0001	
8	8	0000	(TYP)
7	7	1111	
:	:	:	
1	1	1001	
0	0	1000	(MIN)

[Line adjustment 3 menu]

[Setting content]

Setting item		Adjustment range	Initial value
Content	Displayed character string		
Dot search threshold	TH DOT	0-255	87
YS search threshold	TH YS	0-4	3
Phase search threshold	TH PHASE	0-255	112
X disp	X DISP	0-63	1
YS disp	YS DISP	0-4	2

[Line adjustment 4 menu]

[Setting content]

Setting item		Adjustment range	Initial value
Content	Displayed character string		
Main horizontal enhancer gain(SA10[D13-12])	M H GAIN	0-3	0
Main horizontal enhancer limiter(SA10[D11-10])	M H LIMIT	0-3	0
Main horizontal enhancer f0(SA10[D8])	M H F0	0-1	0
Main vertical enhancer gain(SA10[D7-6])	M V GAIN	0-3	0
Main vertical enhancer return(SA10[D5-4])	M V ORI	0-3	0
Main vertical enhancer corering(SA10[D3-2])	M V CORE	0-3	0

[Line adjustment 5 menu]

[Setting content]

Setting item		Adjustment range	Initial value
Content	Displayed character string		
Sub horizontal enhancer gain(SA10[D13-12])	S H GAIN	0-3	0
Sub horizontal enhancer limiter(SA10[D11-10])	S H LIMIT	0-3	1
Sub horizontal enhancer f0(SA10[D8])	S H F0	0-1	1
Sub vertical enhancer gain(SA10[D7-6])	S V GAIN	0-3	0
Sub vertical enhancer return(SA10[D5-4])	S V ORI	0-3	1
Sub vertical enhancer corering(SA10[D3-2])	S V CORE	0-3	2

[Line adjustment 6 menu]

[Setting content]

Setting item		Adjustment range	Initial value
Content	Displayed character string		
Brightness R(SA0C[D13-8])	BRIGHT R	0-63	16
Brightness G(SA0D[D13-8])	BRIGHT G	0-63	16
Brightness B(SA0E[D13-8])	BRIGHT B	0-63	16
γ correction ON/OFF(SA1A[D15])	GAMMA		OFF
RGB simultaneous ? 1 inflection point(SA1A[D5-0])	GAMMA 1	0-63	0
RGB simultaneous ? 2 inflection point(SA1B[D12-8])	GAMMA 2	0-31	4
RGB simultaneous ? 3 inflection point(SA1B[D4-0])	GAMMA 3	0-31	1
RGB simultaneous ? inclination A(SA1A[D14-12])	GAMMASLP A	0-7	4
RGB simultaneous ? inclination B(SA1B[D15-13])	GAMMASLP B	0-7	1
RGB simultaneous ? inclination C(SA1B[D7-5])	GAMMASLP C	0-7	1

Note 1... Be careful as the displayed value (EEPROM written value) and the register setting values in the double window IC are different for the following items.
(Because the relationship between the double window IC register value and the screen output value is not linear, there is a need for conversion by software.)

- **Brightness R**
- **Brightness G**
- **Brightness B**

The cases where the displayed value (EEPROM written values) and the register setting values in the double window IC are different are summarized below.

[Brightness R/G/B]

Displayed value (=adjusted value) (DEC)	E2PROM written value (DEC)	Double window IC register value (BIN)	
63	63	011111	(MAX)
62	62	011110	
:	:	:	
33	33	000001	
32	32	000000	(TYP)
31	31	111111	
:	:	:	
1	1	100001	
0	0	100000	(MIN)

[Line adjustment 7 menu]

[Setting content]

Setting item		Adjustment range	Initial value
Content	Displayed character string		
Main PLL0(SA24[D15-8])	MAIN PLL0	0-255	158
Main PLL1(SA24[D7-0])	MAIN PLL1	0-255	13
Main PLL2(SA25[D15-8])	MAIN PLL2	0-255	204
Main PLL3(SA25[D7-0])	MAIN PLL3	0-255	4

[Line adjustment 8 menu]

[Setting content]

Setting item		Adjustment range	Initial value
Content	Displayed character string		
During TV, sub PLL0(SA26[D15-8])	SUB PLL0 TV	0-255	140
During TV, sub PLL1(SA26[D7-0])	SUB PLL1 TV	0-255	136
Other, sub PLL0(SA27[D15-8])	SUB PLL0	0-255	140
Other, sub PLL1(SA27[D7-0])	SUB PLL1	0-255	141
During TV, sub PLL2(SA28[D15-8])	SUB PLL2 TV	0-255	100
During TV, sub PLL3(SA28[D7-0])	SUB PLL3 TV	0-255	68
Other, sub PLL2(SA29[D15-8])	SUB PLL2	0-255	152
Other, sub PLL3(SA29[D7-0])	SUB PLL3	0-255	107

[Line adjustment 9 menu]

[Setting content]

Setting item		Adjustment range	Initial value
Content	Displayed character string		
SA46[D15-8]	SA46H UPPER	0-255	2
SA46[D7-0]	SA46H LOWER	0-255	0
SA47[D15-8]	SA47H UPPER	0-255	0
SA47[D7-0]	SA47H LOWER	0-255	0
SA48[D15-8]	SA48H UPPER	0-255	0
SA48[D7-0]	SA48H LOWER	0-255	0
SA49[D15-8]	SA49H UPPER	0-255	0
SA49[D7-0]	SA49H LOWER	0-255	0
SA4A[D15-8]	SA4AH UPPER	0-255	0
SA4A[D7-0]	SA4AH LOWER	0-255	0

[Line adjustment 10 menu]

[Setting content]

Setting item		Adjustment range	Initial value
Content	Displayed character string		
SA4B[D15-8]	SA4BH UPPER	0-255	0
SA4B[D7-0]	SA4BH LOWER	0-255	0
SA4C[D15-8]	SA4CH UPPER	0-255	0
SA4C[D7-0]	SA4CH LOWER	0-255	0
SA4D[D15-8]	SA4DH UPPER	0-255	0
SA4D[D7-0]	SA4DH LOWER	0-255	0
SA4E[D15-8]	SA4EH UPPER	0-255	0
SA4E[D7-0]	SA4EH LOWER	0-255	0
SA4F[D15-8]	SA4FH UPPER	0-255	0
SA4F[D7-0]	SA4FH LOWER	0-255	0

[Dimmer parameter setting menu]

[Setting content]

Setting item		Adjustment range	Initial value
Content	Displayed character string		
Backlight output max value	BL MAX	0x00-0xFF	C4
Backlight output min value	BL MIN	0x00-0xFE	59
Dimmer threshold value (high)	REF H	0x01-0xFE	C0
Dimmer threshold value (low)	REF L	0x00-0xFD	60
External light point (high)	LUM H	0x02-0xFF	E2
External light point (medium)	LUM M	0x01-0xFE	87
External light point (low)	LUM L	0x00-0xFD	52
Backlight point (high)	BL H	0x00-0xFF	C4
Backlight point (medium)	BL M	0x00-0xFF	C4
Backlight point (low)	BL L	0x00-0xFF	68

- The data of the points (coordinates) for the dimmer is stored in the EEPROM but not used for CS calculation as it is changed by the user operation.

Note 1... The adjustment range of each item listed above is the range applicable when the following relationships are satisfied.

The value which destroys the relationship below cannot be set even if it is within the adjustment range.

- **Regarding the backlight output minimum value, there is a relationship where;**
  "backlight output minimum value < backlight output maximum value"
  and "backlight output minimum value ≦ backlight point (low)"
- **"External light point (low) ≦ dimmer threshold value (low) < external light point (medium) ≦ ≦ dimmer threshold value (high) < external light point (high)"**
- **"Backlight point (low) ≦ backlight point (medium) ≦ backlight point (high) ≦ ≦ backlight output maximum value"**

[Operational specifications]

Operational description	Main unit key	Remote controller key
Main page select -	PGM(TA)	BAND/ESC
Main page select +	DISP	BACK
Selection cursor upward movement	–	↑
Selection cursor downward movement	–	↓
Item content adjustment	–	←
Item content adjustment	–	→

8.7 CALIBRATION TEST

[Mode IN method]
After pressing [PGM(TA)+OPEN/CLOSE], press RESET and START. Then the screen will change to [touch panel adjustment mode].

[Menu types for mode]
Calibration test mode consists of the following menu.
(By clicking each menu, you can read the explanation for each menu.)

TOP menu
- Outermost circumference Inspection
- 16 points adjustment
- Coordinate inspection
- Calibration verification
- Data initialization

0. Explanation of the TOP menu

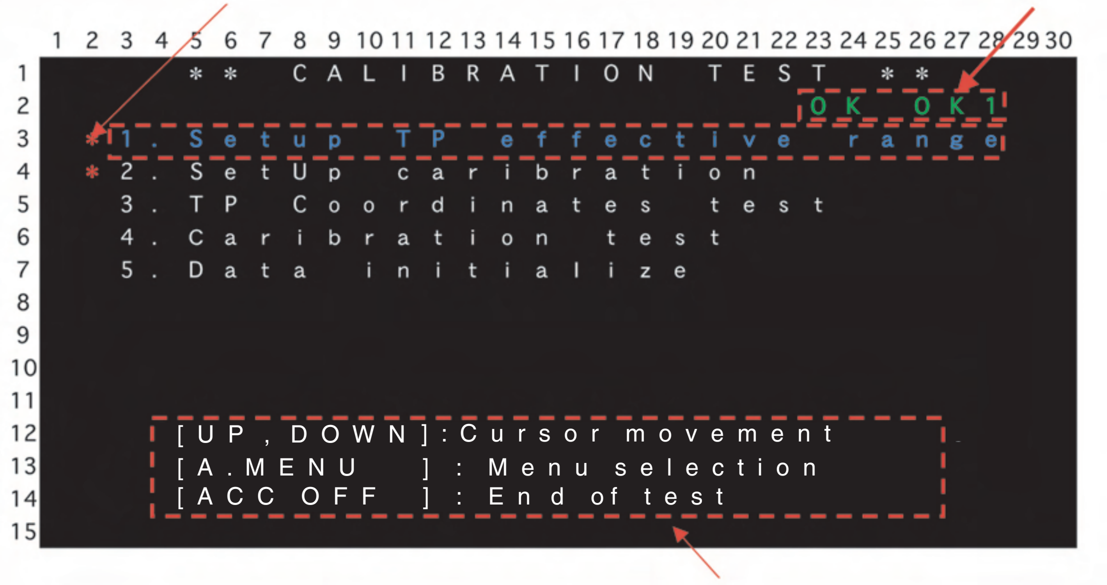
[Operational specifications]

Operational description	Remote controller key
Menu determination	MENU_ENTER
Selection cursor up movement	↑
Selection cursor down movement	↓

Select the menu desired to be adjusted using the up/down key (↑ ↓), then press ENTER key to enter into the selected menu.

Note 1) Calibration menu can be selected only when adjustment of the outermost circumference has been completed normally.

[Display specifications]



Adjustment completed mark

Flicker initialized state

```
  * *   C A L I B R A T I O N   T E S T   * *
                                        O K   O K 1
* 1 . S e t u p   T P   e f f e c t i v e   r a n g e
* 2 . S e t U p   c a r i b r a t i o n
  3 . T P   C o o r d i n a t e s   t e s t
  4 . C a r i b r a t i o n   t e s t
  5 . D a t a   i n i t i a l i z e

      [ U P , D O W N ] : C u r s o r   m o v e m e n t
      [ A . M E N U     ] :   M e n u   s e l e c t i o n
      [ A C C   O F F   ] :   E n d   o f   t e s t
```

Operational specifications are displayed

Conditions for lighting of the adjustment complete mark "∗ ".

Outermost circumference inspection :
In case the outermost circumference inspection has been completed normally.

16 points adjustment :
In case the calibration has been completed normally.

Conditions for the adjustment complete mark "∗" to go out

Outermost circumference inspection :
In case the outermost circumference inspection has never been performed.
In case the EEPROM initialization has been performed.
In case the adjustment value has been initialized.

16 points adjustment :
In case the 16 points adjustment has never been performed.
In case the EEPROM initialization has been performed.
In case the adjustment value has been initialized.

1. Set up TP effective range

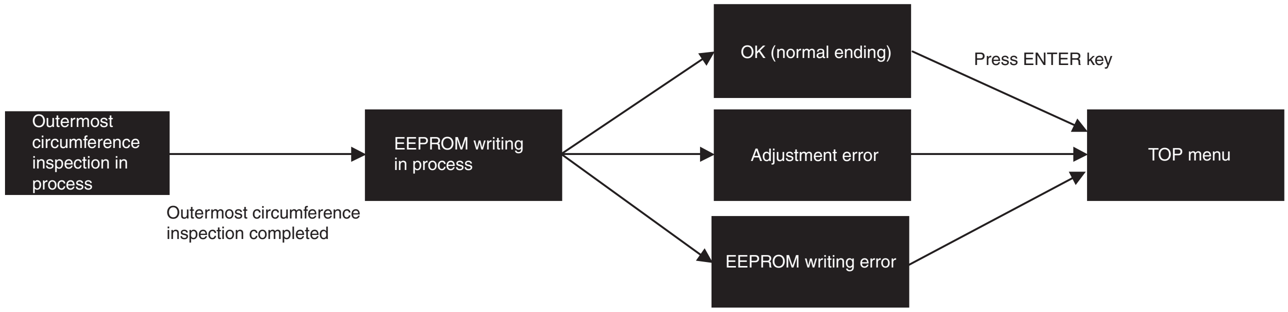
[Outline]

Outermost circumference value of X and Y is obtained by tracing the outermost circumference of the touch panel screen.
When exiting the menu screen by pressing ENTER key, the captured value is stored in the EEPROM.
Furthermore, when storing the value, checking is made as to whether the value is within the range or not.
If the value is within the range, OK is displayed, and X/Y upper and lower limit value and normal ending information, total of 5 byte data, are written in the EEPROM. (In or out of the range check is conducted according to the [Table of allowable range of setting value] shown below.)

In the following cases, however, NG will be displayed without storing the EEPROM captured value.

When the set value is outside of the range. (When the value exceeded the [Table of allowable range of setting value] below.)
However, "adjustment NG information" (1 byte) is written into the EEPROM.
When writing into the EEPROM failed.

The transition of the state for the above described outermost circumference inspection is outlined below.


Outermost circumference inspection in process
Outermost circumference inspection completed
EEPROM writing in process
OK (normal ending)
Adjustment error
EEPROM writing error
Press ENTER key
TOP menu

Refer to the "Memory item list and EEPROM" for the stored area of the setting value in the EEPROM. Initial value and setting value allowable range are as shown below.

[Table of BEFORE initial value]

Coordinate	Minimum value	Maximum value
X	43	247
Y	50	238

[Table of AFTER initial value]

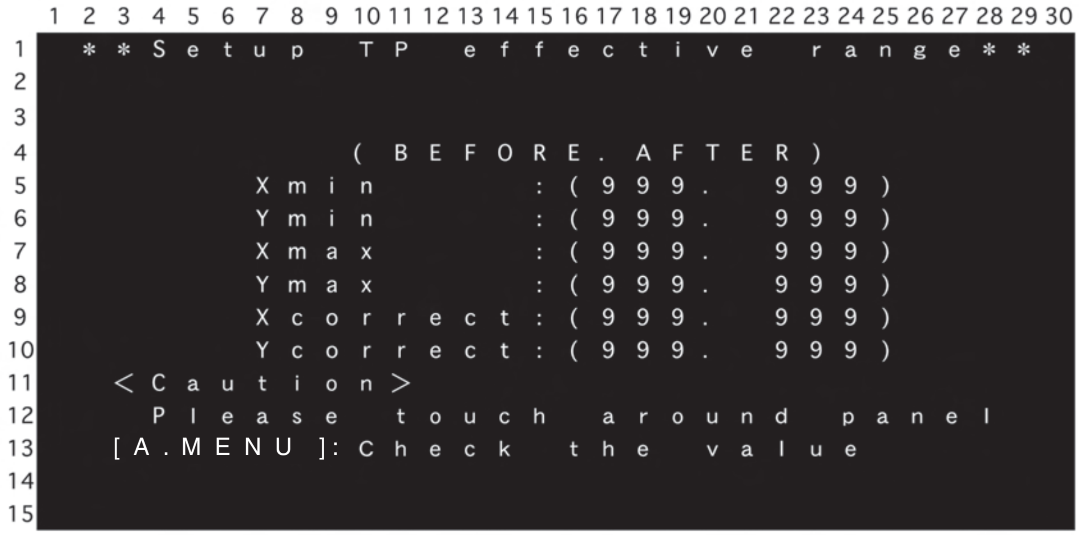
Coordinate	Minimum value	Maximum value
X	90	180
Y	90	180

[Table of setting value allowable range]

Coordinate	Minimum value	Maximum value
X	0~72	205~255
Y	0~80	205~255

[Display specifications]

Outermost circumference inspection in process

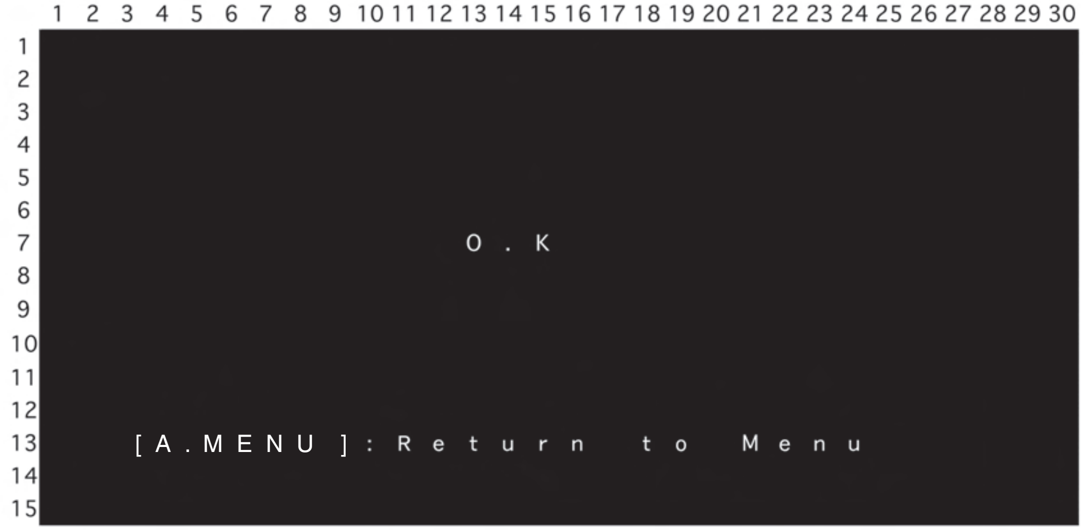


```
  **Setup TP effective range**


          (BEFORE.AFTER)
       Xmin      :(999. 999)
       Ymin      :(999. 999)
       Xmax      :(999. 999)
       Ymax      :(999. 999)
       Xcorrect  :(999. 999)
       Ycorrect  :(999. 999)
 <Caution>
  Please touch around panel
 [A.MENU]:Check the value
```

X/Y information of [MIN] and [MAX] of the outermost circumference are displayed.
[BEFOR] indicates the value stored in the EEPROM.
[AFTER] indicates MIN/MAX of the A/D value currently captured.

When ended normally.

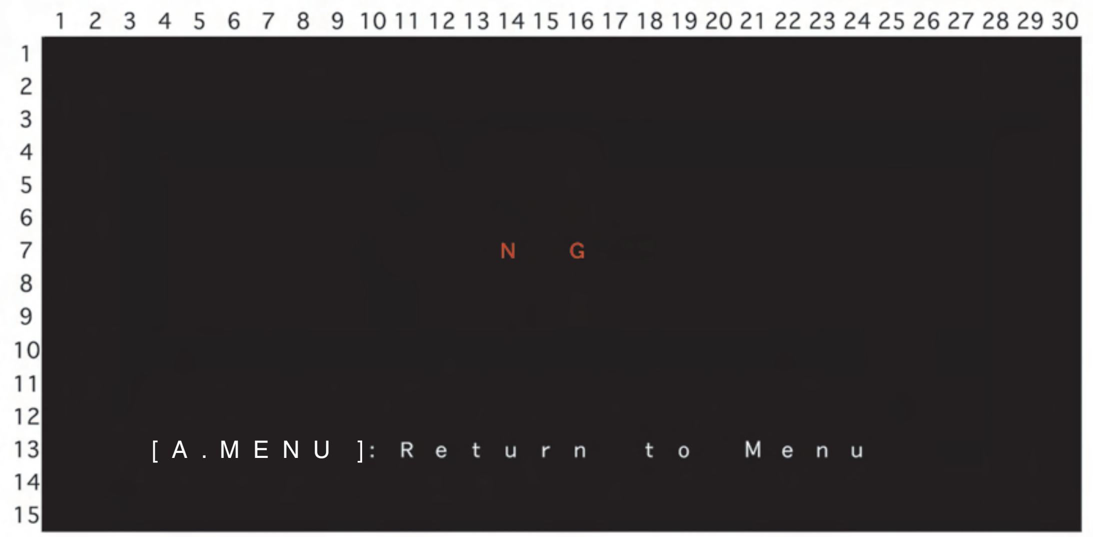


```
             O.K

  [A.MENU]:Return to Menu
```

The data written are as follows.
Upper limit value and lower limit value of X.
Upper limit value and lower limit value of Y.
Adjustment OK information.

When the captured value is outside of the allowable range.


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

NG

[A.MENU]: Return to Menu

The data written is as follows.
Adjustment NG information.

[Key operation specifications]

Operational description	Remote controller key
To TOP menu	MENU_ENTER

2. Set up calibration

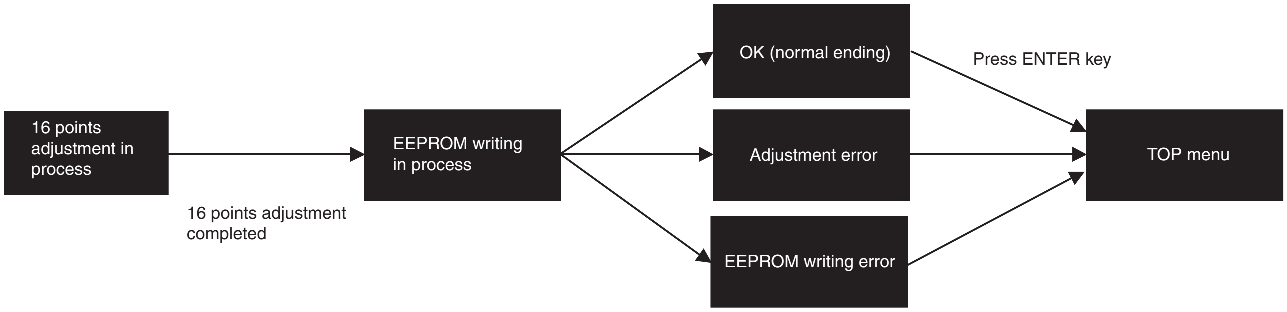
[Outline]

Touch the cursor [+] displayed on the screen. When correctly touched, the cursor will disappear, and the next cursor will appear. Calibration is conducted by repeating this process 16 times. When the 17th point has been finally touched, setting information for the 16 points and the normal ending information, total of 17 byte data, are written into the EEPROM, and the screen returns to the TOP menu.

In the following cases, however, NG will be displayed without storing the EEPROM captured value.

When the menu is exited before touching the 17th point.
However, 'adjustment NG information' (1 byte) is written into the EEPROM.
When writing into the EEPROM failed.

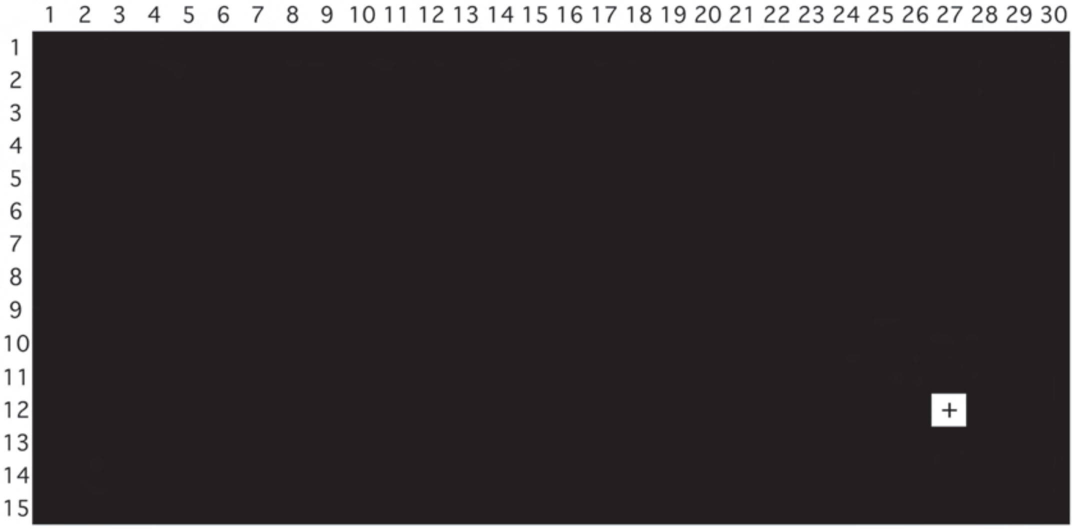
The transition of the state for the above described 16 points adjustment is outlined below.


16 points adjustment in process
16 points adjustment completed
EEPROM writing in process
OK (normal ending)
Adjustment error
EEPROM writing error
Press ENTER key
TOP menu

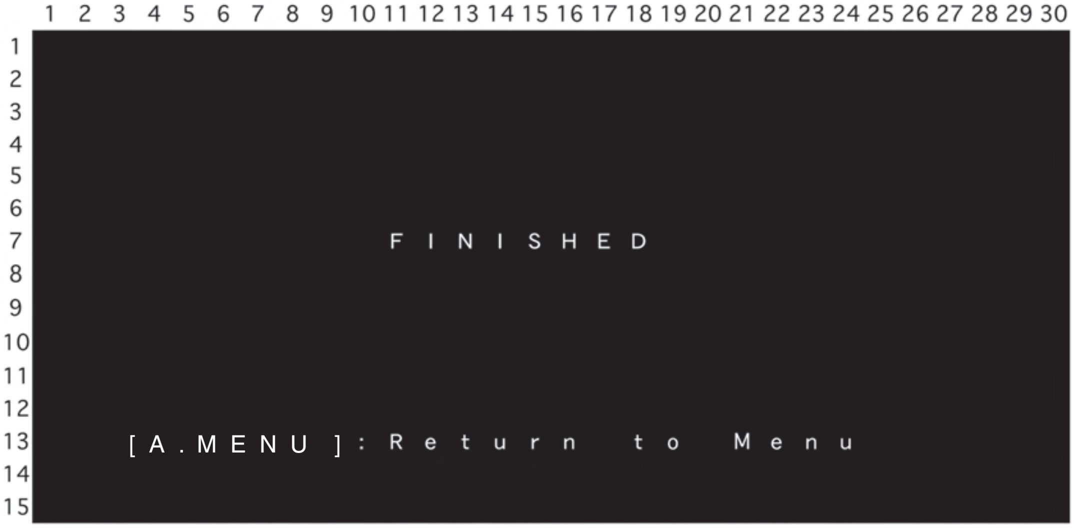
Refer to the material titled [Memory item list and EEPROM] for the stored area of the setting value in the EEPROM.

[Display specifications]

16 points adjustment in process


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
+

When ended normally.


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

FINISHED

[A.MENU]: Return to Menu

The data written are as follows.
X coordinate (16 points)
Y coordinate (16 points)

[Key operation specifications]

Operational description	Remote controller key
To TOP menu	MENU_ENTER

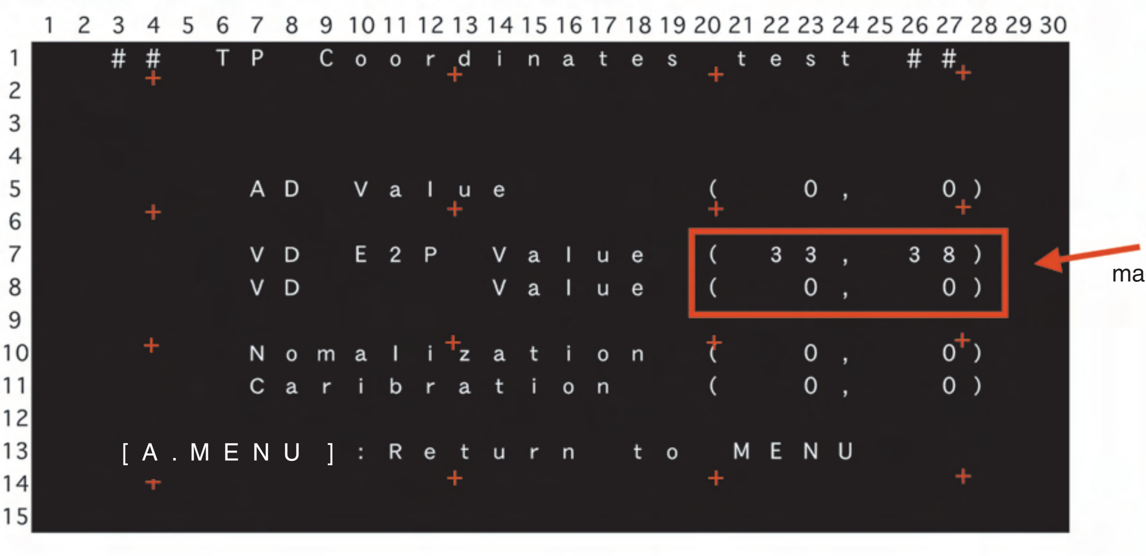
3. TP coordinates test

[Outline]

Coordinate before and after the correction when the touch panel is touched is displayed, and the operation is verified. Furthermore, the cursor can be moved by using the up/down/left/right keys, and the coordinate of the cursor center is displayed.

The cursor is displayed in red at the positions where the cursor was displayed during 16 points adjustment.

[Display specifications]



```
  ## TP Coordinates test ##



      AD Value              (  0,  0)

      VD E2P Value          ( 33, 38)
      VD     Value          (  0,  0)

      Nomalization          (  0,  0)
      Caribration           (  0,  0)

  [A.MENU]:Return to MENU
```

Display is made in HEX.

AD : AD data value (X direction, Y direction), representing the coordinate of the point pressed, is displayed.

VD E2P : VD value (the value registered at the time of circumference setting) preset in the EEPROM.
VD : VD value currently being pressed.

NORMAL : The coordinate (X direction, Y direction), which is the result of normalizing the AD data value currently being pressed within the effective range, is displayed.

CALIBRATION : The coordinate (X direction, Y direction), which is the result of applying the correction by calibration to the normalized coordinate, is displayed.

[Key operation specifications]

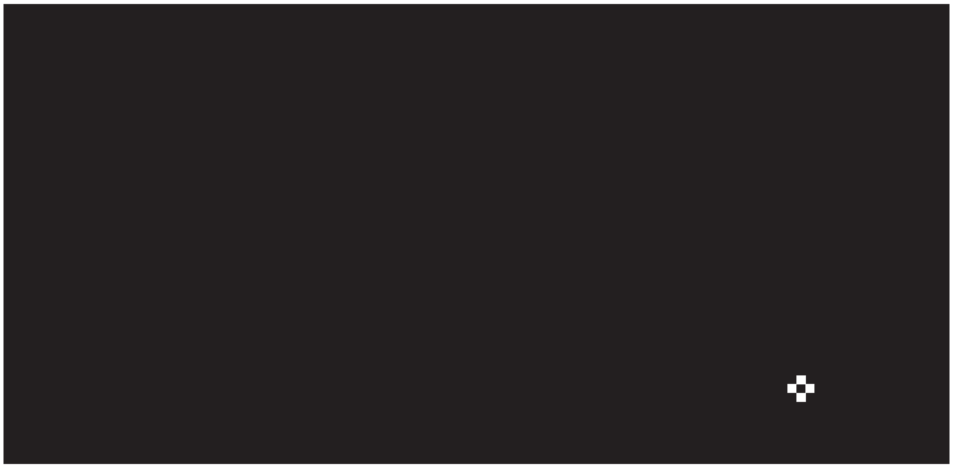
Operational description	Remote controller key
To TOP menu	MENU_ENTER
Cursor upward movement	↑
Cursor downward movement	↓
Cursor leftward movement	←
Cursor rightward movement	→

[Calibration verification]

[Outline]

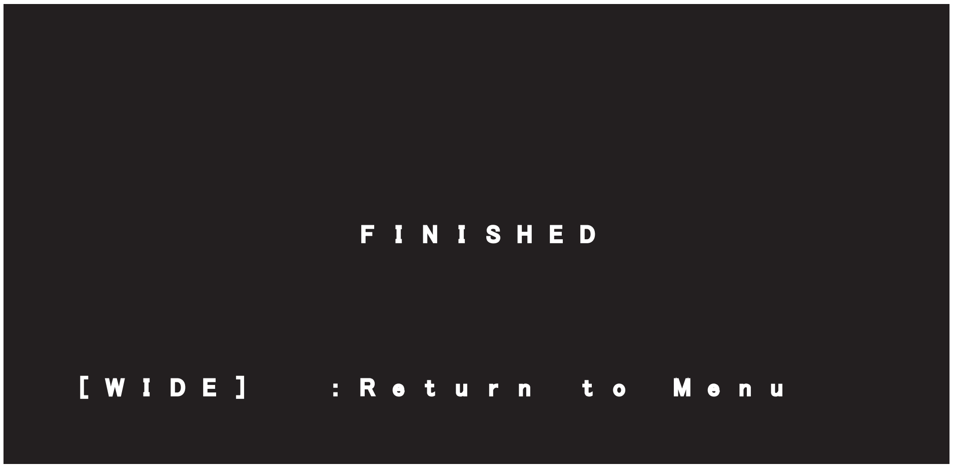
- Touch the center of the "+" cursor displayed on the screen. When touched correctly, the cursor will disappear, and the next cursor will be displayed.
  By repeating this 16 times, corrected value for each "+" point is obtained.
  The information are written into the EEPROM as a data of 16 times. The screen will return to the top menu.

[Display specifications]



"+" changes into red when coordinates to touch are outside the range.

- **When terminated normally. (After pressing the 16th point.)**



FINISHED

[WIDE] :Return to Menu

[Key operation specifications]

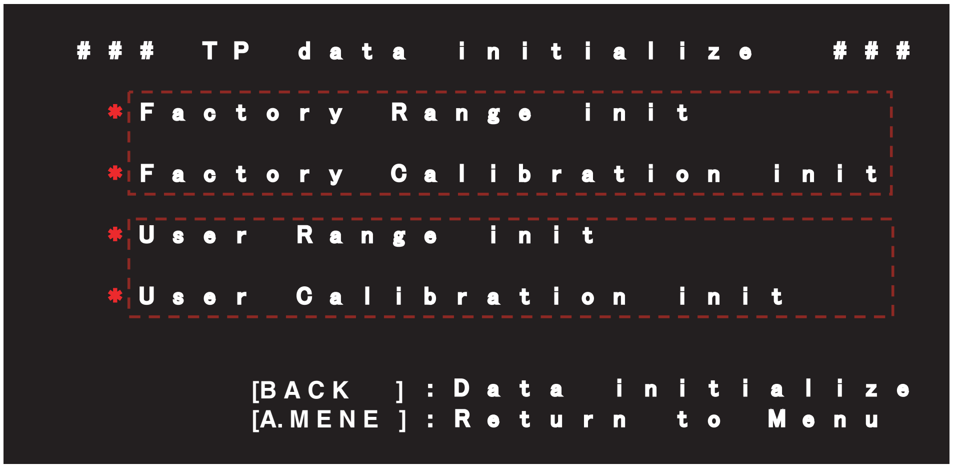
Operational description	Remote controller key
To top menu	MENU_ENTER

[Data initialization]

[Outline]

- Result of outermost circumference inspection and of calibration inspection (corrected value) are returned to their initial values.
  As for the initialized items, the initial values are written into the EEPROM and the adjustment information is cleared.

[Display specifications]



TP data initialize

*Factory Range init
*Factory Calibration init
*User Range init
*User Calibration init

[BACK] : Data initialize
[A.MENE] : Return to Menu

- Conditions for the adjustment completion mark (*) to be lighted up.
  (The mark will be lighted up if one of the multiple conditions is met.)
  - ☐ Outermost circumference inspection
    When the outermost circumference inspection of the calibration for line has been completed normally.
  - ☐ 16 point adjustment
    When the calibration inspection for line has been completed normally.
  - ☐ User outermost circumference inspection
    When the outermost circumference inspection of calibration for line has been completed normally.
    (Because the writing is made to both the Factory region and the User region, **the user side will also be treated as adjusted.)**
    When the outermost circumference inspection of the user calibration has been completed normally.
  - ☐ User 16 point adjustment
    When the calibration inspection for line has been completed normally.
    (Because the writing is made to both the Factory region and the User region, **the user side will also be treated as adjusted.)**
    When the calibration inspection of the user calibration has been completed normally.

- Conditions for the adjustment completion mark (*) to go out.
  (The mark will go out if one of the multiple conditions is met.)
  - ☐ Outermost circumference inspection
    When the above mentioned lighting conditions are not applicable.
    When the adjusted value has been initialized (Data initialize).
    When the EEPROM has been initialized.
  - ☐ 16 point adjustment
    When the above mentioned lighting conditions are not applicable.
    When the adjusted value has been initialized (Data initialize).
    When the EEPROM has been initialized.
  - ☐ User outermost circumference inspection
    When the above mentioned lighting conditions are not applicable.
    When the adjusted value has been initialized (Data initialize).
    When the EEPROM has been initialized.
  - ☐ User 16 point adjustment
    When the above mentioned lighting conditions are not applicable.
    When the adjusted value has been initialized (Data initialize).
    When the EEPROM has been initialized.

[Key operation specifications]

Operational description	Remote controller key
Determination of initializing item	BACK
Selected cursor up movement	↑
Selected cursor down movement	↓
To top menu	MENU_ENTER

A

B

C

D

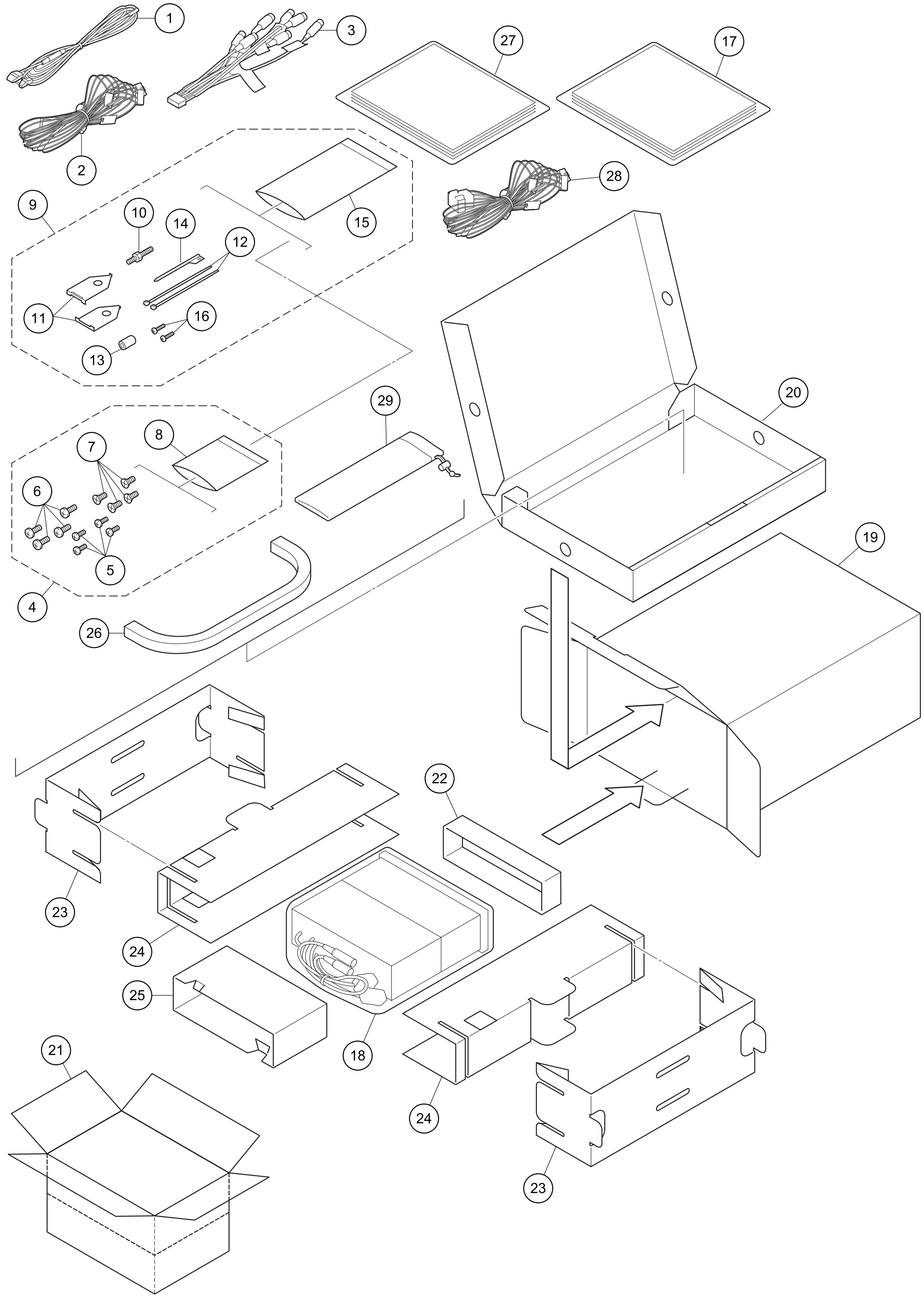
E

F

9. EXPLODED VIEWS AND PARTS LIST

NOTES :
- *Parts marked by " * " are generally unavailable because they are not in our Master Spare Parts List.*
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Screw adjacent to▽ mark on the product are used for disassembly.*
- *For the applying amount of lubricants or glue, follow the instructions in this manual. (In the case of no amount instructions,apply as you think it appropriate.)*

9.1 PACKING


1
3
27
17
2
28
9
10
14
12
15
11
16
13
20
29
8
7
6
5
4
19
26
22
23
24
25
18
21
24
23

(1)PACKING SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	Cord Assy	CDE7321
	2	Cord Assy	See Contrast table(2)
	3	Cord Assy	CDP1014
	4	Screw Assy	CEA5144
	5	Screw	BMZ50P060FTC
	6	Screw(M4 x 3)	CBA1870
	7	Screw	CMZ50P060FTC
*	8	Polyethylene Sheet	CNM4338
*	9	Accessory Assy	CEA7477
	10	Screw	CBA1650
	11	Bracket	CND4079
*	12	Lock Tie	CNV-754
	13	Bush	CNV3930
	14	Pen	CNV8969
*	15	Polyethylene Bag	E36-615
	16	Screw	JGZ20P070FTC
	17-1	Polyethylene Bag	CEG1116
	17-2	Owner's Manual	See Contrast table(2)
	17-3	Owner's Manual	See Contrast table(2)
	17-4	Installation Manual	See Contrast table(2)
*	17-5	Warranty Card	See Contrast table(2)
	17-6	Caution Card	See Contrast table(2)
*	17-7	Registration Card	See Contrast table(2)
	17-8	Owner's Manual	See Contrast table(2)
	17-9	Owner's Manual	See Contrast table(2)
	17-10	Owner's Manual	See Contrast table(2)
	18	Polyethylene Bag	See Contrast table(2)
	19	Unit Box	See Contrast table(2)
	20	Sub Unit Box	CHG6195
	21	Contain Box	See Contrast table(2)
	22	Protector	CHP2540
	23	Protector	CHP3351
	24	Protector	CHP3352
	25	Protector	CHP3353
	26	Sheet	CNN1741
	27-1	Polyethylene Bag	See Contrast table(2)
	27-2	Owner's Manual	See Contrast table(2)
	27-3	Installation Manual	See Contrast table(2)
	27-4	Warranty Card	See Contrast table(2)
	28	Cord Assy	See Contrast table(2)
	29	Cover	CEG1385

(2) CONTRAST TABLE

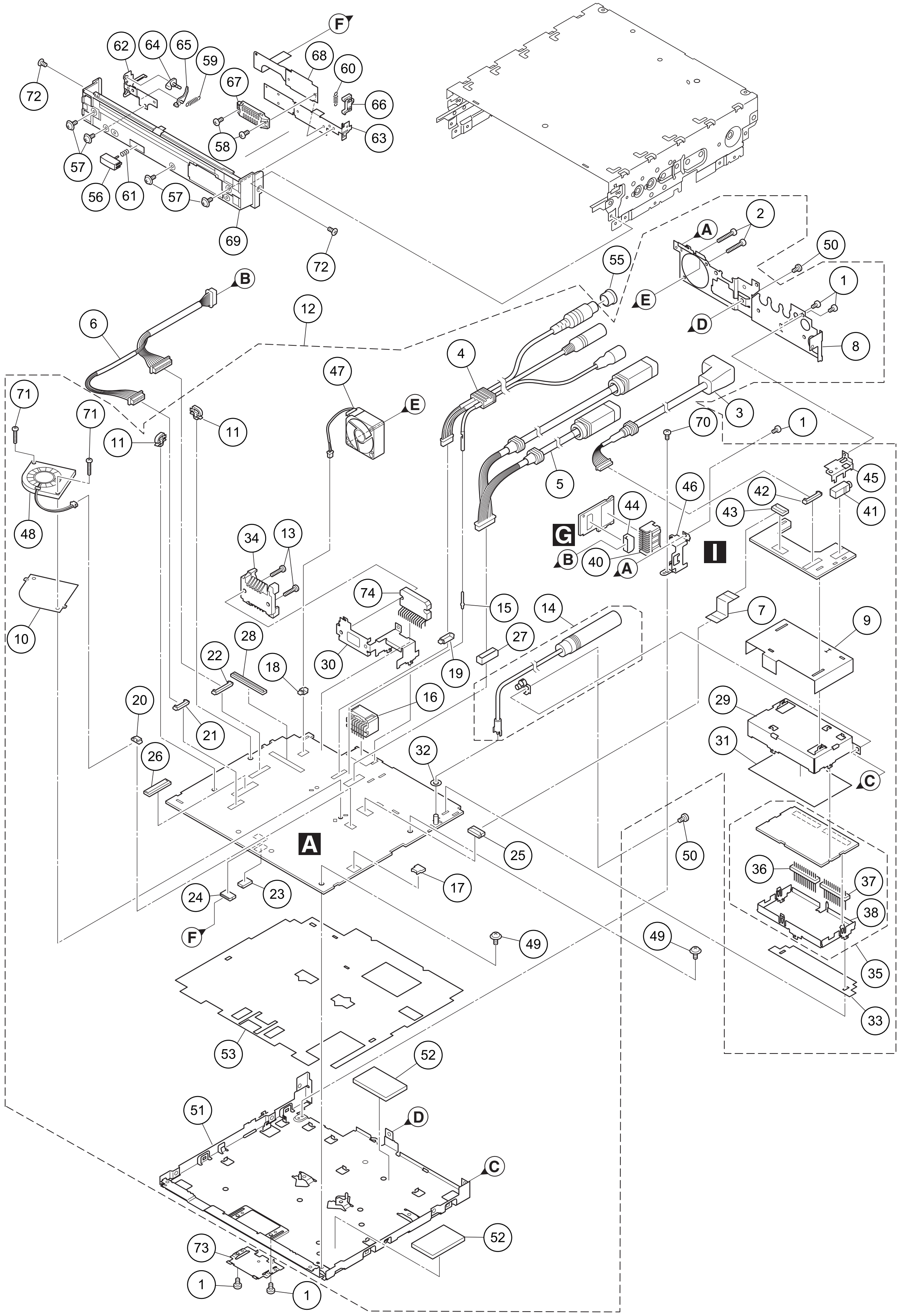
AVH-P5900DVD/XN/UC, AVH-P5900DVD/XNEW5 and AVH-P5900DVD/XN/RE are constructed the same except for the following:

Mark	No.	Description	AVH-P5900DVD/XN/UC	AVH-P5900DVD/XNEW5	AVH-P5900DVD/XN/RE
	2	Cord Assy	CDP1013	Not used	Not used
	17-2	Owner's Manual	CRB2364	CRB2355	CRB2362
	17-3	Owner's Manual	CRB2365	CRB2356	CRB2363
	17-4	Installation Manual	CRD4214	Not used	CRD4213
*	17-5	Warranty Card	CRY1246	Not used	CRY1157
	17-6	Caution Card	CRP1310	Not used	Not used
*	17-7	Registration Card	CRY1229	Not used	Not used
	17-8	Owner's Manual	Not used	CRB2357	Not used
	17-9	Owner's Manual	Not used	CRB2358	Not used
	17-10	Owner's Manual	Not used	CRB2359	Not used
	18	Polyethylene Bag	CEG1185	CEG1042	CEG1042
	19	Unit Box	CHG6189	CHG6190	CHG6193
	21	Contain Box	CHL6189	CHL6190	CHL6193
	27-1	Polyethylene Bag	Not used	CEG1116	Not used
	27-2	Owner's Manual	Not used	CRB2360	Not used
	27-3	Installation Manual	Not used	CRD4212	Not used
	27-4	Warranty Card	Not used	CRY1157	Not used
	28	Cord Assy	Not used	CDP1012	CDP1012

Owner's Manual,Installation Manual

Part No.	Language
CRB2355, CRB2362, CRB2364	English
CRB2365, CRB2358	French
CRB2356	Spanish
CRB2357	German
CRB2359	Italian
CRB2360	Dutch
CRB2363	Russian
CRD4214	English, French
CRD4212	English, Spanish, German, French, Italian, Dutch
CRD4213	English, Russian

9.2 EXTERIOR(1)



F
62
64
65
59
68
60
72
67
66
58
63
57
56
61
57
69
72
2
A
50
55
E
1
D
8
B
6
12
47
E
4
3
70
1
71
71
11
11
5
46
45
42
41
43
44
G
48
34
13
B
40
A
I
10
74
15
14
7
9
28
22
27
30
18
19
16
20
21
29
31
26
32
C
25
50
36
37
17
24
23
38
F
49
49
35
33
53
52
51
D
C
52
73
1
1

(1)EXTERIOR(1) SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	Screw	BMZ20P030FTB
	2	Screw	BMZ20P160FTC
	3	Cord Assy	CDE8381
	4	Cord Assy	CDE8382
	5	Cord Assy	CDE8383
	6	Cord Assy	CDE8385
	7	Flat Cable	CDE8386
	8	Panel	CNB3383
	9	Insulator	CNN1578
	10	Insulator	CNN1737
	11	Clamper	CNV9670
	12	DVD Amp Assy	See Contrast table(2)
	13	Screw	BMZ26P120FTC
	14	Antenna Cable	CDH1362
	15	Terminal(CN762)	CKF-047
	16	Plug(CN761)	CKM1516
	17	Connector(CN462)	CKS4817
	18	Connector(CN951)	CKS4822
	19	Connector(CN381)	CKS4827
	20	Connector(CN961)	CKS4977
	21	Connector(CN391)	CKS4983
	22	Connector(CN311)	CKS4987
	23	Connector(CN531)	CKS5036
	24	Connector(CN481)	CKS5038
	25	Connector(CN461)	CKS5041
	26	Connector(CN541)	CKS5100
	27	Connector(CN351)	CKS5529
	28	Connector(CN512)	CKS5722
	29	Holder	CND3847
	30	Holder	CND3848
	31	Insulator	CNM9521
	32	Spacer	CNN1909
	33	Spacer	CNM9523
	34	Heat Sink	CNR1906
	35	FM/AM Tuner Unit	See Contrast table(2)
	36	Connector(CN101)	CKS4653
	37	Connector(CN102)	CKS4653

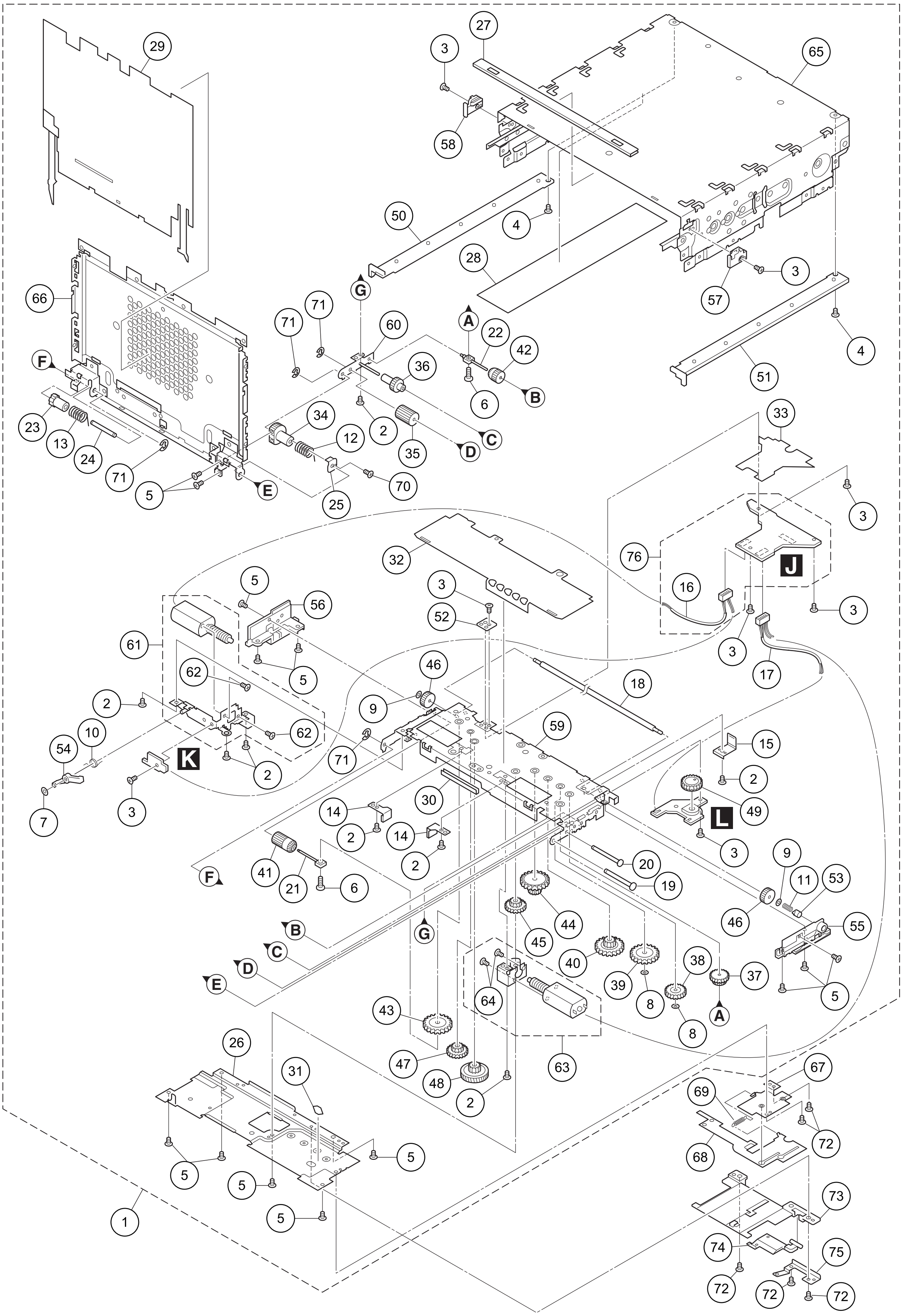
Mark	No.	Description	Part No.
	38	Holder	CND1432
	39	•••••	
	40	Connector(CN4301)	CKM1506
	41	Jack(CN4203)	CKN1022
	42	Connector(CN4202)	CKS4985
	43	Connector(CN4201)	CKS5041
	44	Connector(CN4302)	CKS5270
	45	Holder	CND3849
	46	Holder	CND3996
	47	Fan Motor	CXM1262
	48	Fan Motor	CXM1276
	49	Screw	AMZ26P040FTC
	50	Screw	BMZ26P030FTC
	51	Case	CNB3384
	52	Sheet	CNM8228
	53	Insulator	CNN1575
	54	•••••	
	55	Cap	CNV6727
	56	Button	CAI1460
	57	Screw(M2 x 3)	CBA2078
	58	Screw(M2 x 3)	CBA2079
	59	Spring	CBH2681
	60	Spring	CBH2682
	61	Spring	CBH2683
	62	Holder	CND3852
	63	Holder	CND3853
	64	Arm	CNV8571
	65	Arm	CNV8572
	66	Arm	CNV8573
	67	Connector	CKS4658
	68	Flexible PCB	CNP9973
	69	Panel Unit	CXC7633
	70	Screw	JGZ20P020FTB
	71	Screw(M2 x 8)	CBA1752
	72	Screw(M2 x 3)	CBA1877
	73	Holder	CND4167
	74	IC(IC331)	PAL007C

(2) CONTRAST TABLE

AVH-P5900DVD/XN/UC, AVH-P5900DVD/XNEW5 and AVH-P5900DVD/XN/RE are constructed the same except for the following:

Mark	No.	Description	AVH-P5900DVD/XN/UC	AVH-P5900DVD/XNEW5	AVH-P5900DVD/XN/RE
	12	DVD Amp Assy	CXC7508	CXC7506	CXC7507
	35	FM/AM Tuner Unit	CWE2046	CWE2045	CWE2045

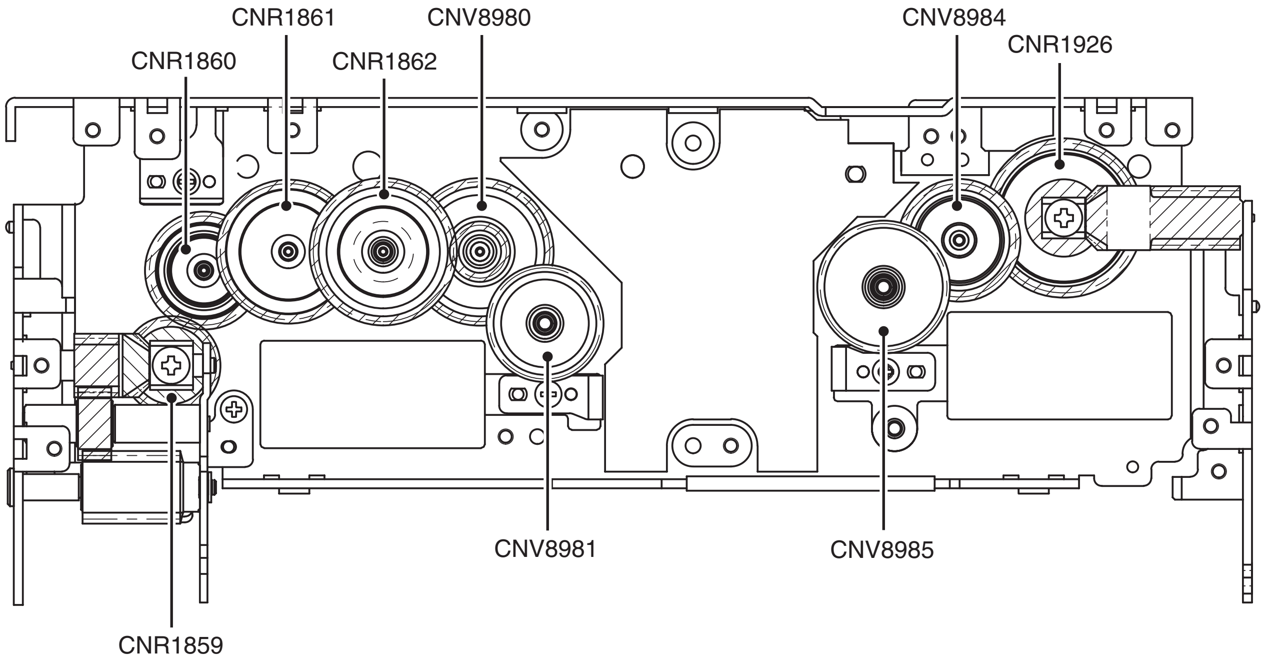
9.3 EXTERIOR(2)


29
27
3
65
58
50
4
28
3
57
66
G
71
71
60
A
22
42
4
51
F
36
6
B
23
13
24
71
5
E
34
12
2
35
D
C
25
70
33
3
32
76
J
16
3
3
3
5
56
61
62
52
46
18
17
2
10
62
9
59
54
K
2
71
15
7
3
2
30
49
14
L
2
14
3
2
41
21
6
F
20
19
9
11
53
B
G
46
55
C
44
45
40
39
38
37
E
D
64
8
A
5
43
8
47
63
48
2
26
31
67
69
72
68
5
5
5
5
5
73
1
74
75
72
72
72

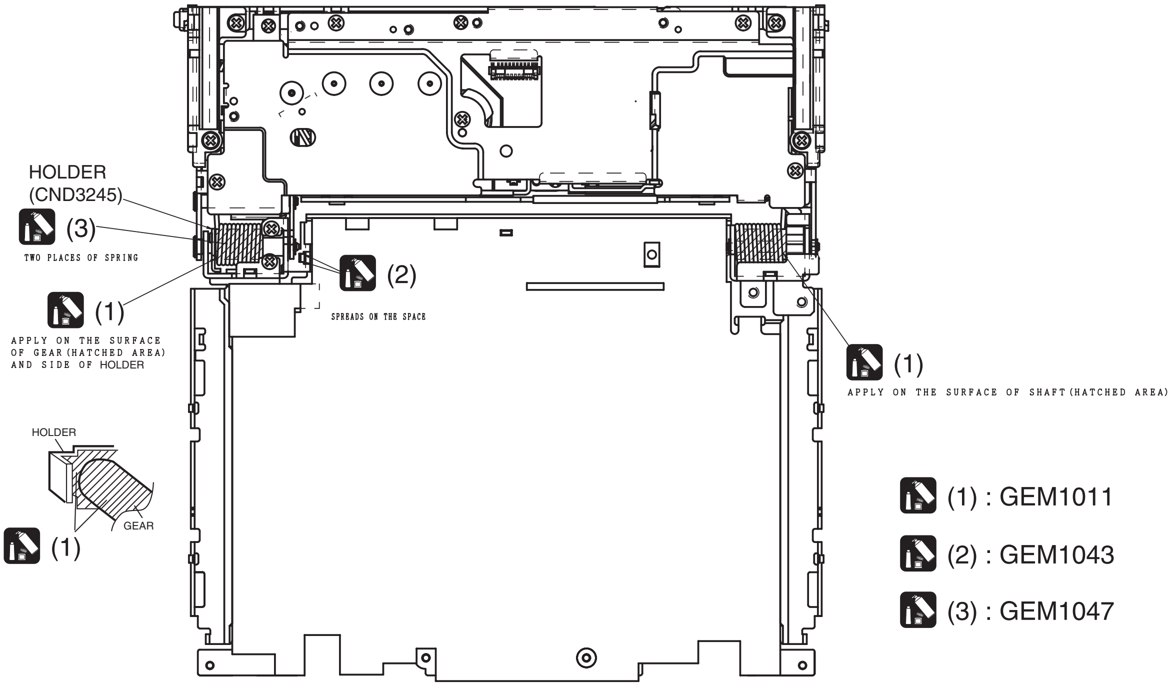
EXTERIOR(2) SECTION PARTS LIST

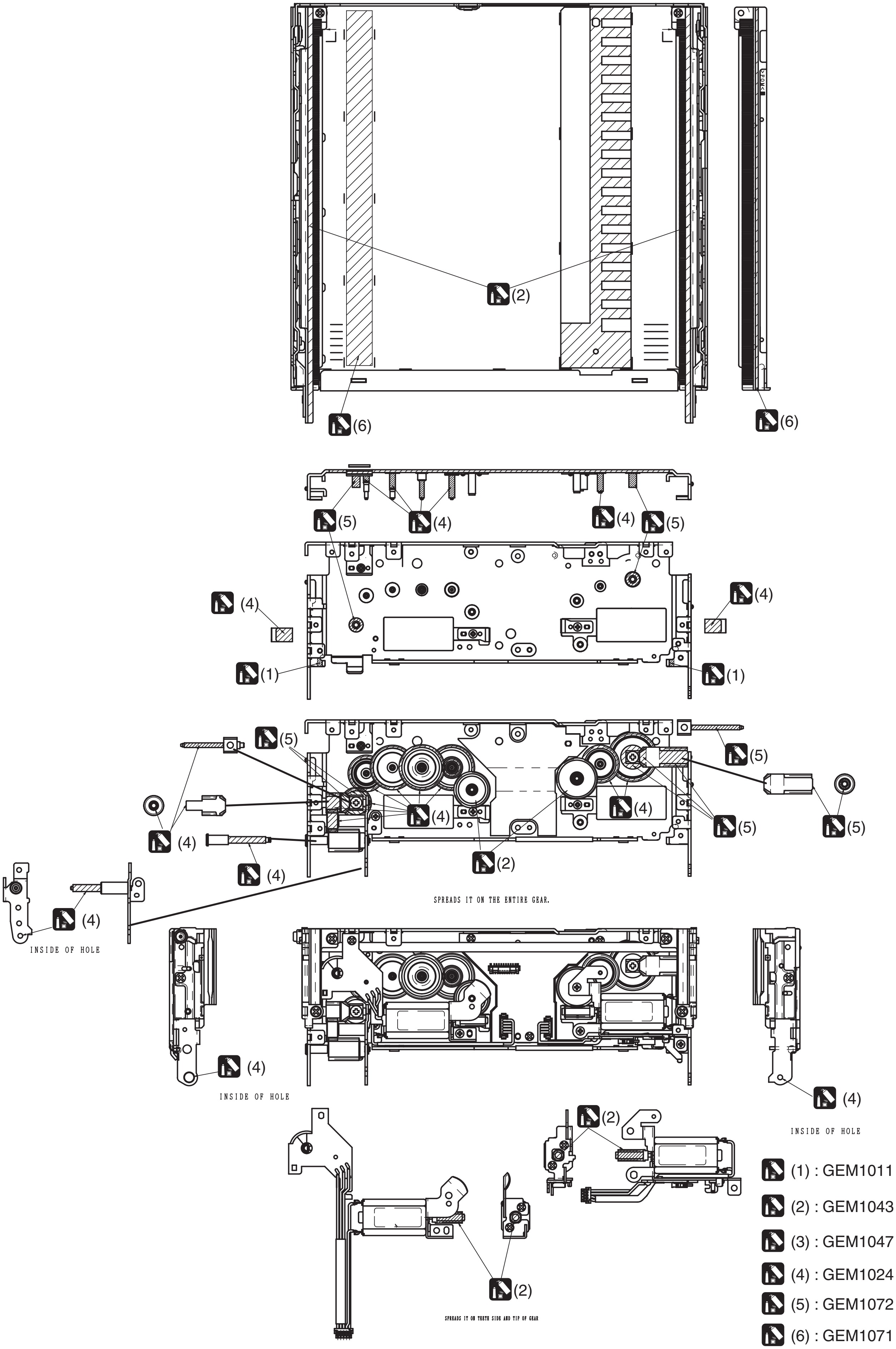
Mark	No.	Description	Part No.
	1	Drive Unit	CXC7637
	2	Screw(M2 x 2)	CBA1608
	3	Screw(M2 x 1.5)	CBA1615
	4	Screw(M2 x 2)	CBA1872
	5	Screw(M2 x 3)	CBA1877
	6	Screw(M2.3 x 6)	CBA2027
	7	Washer	CBF1037
	8	Washer	CBF1039
	9	Washer	CBF1064
	10	Spring	CBH2906
	11	Spring	CBH2907
	12	Spring	CBH2908
	13	Spring	CBH2909
	14	Spring	CBL1723
	15	Spring	CBL1734
	16	Cord	CDE8127
	17	Cord	CDE8128
	18	Shaft	CLA4651
	19	Shaft	CLA4661
	20	Shaft	CLA4662
	21	Shaft	CLA4663
	22	Shaft	CLA4664
	23	Shaft	CLA4665
	24	Shaft	CLA4666
	25	Holder	CND3245
	26	Cover	CND3252
	27	Sheet	CNN1055
	28	Sheet	CNN1056
*	29	Insulator	CNN1583
	30	Sheet	CNN1065
	31	Insulator	CNN1068
*	32	Sheet	CNN1349
	33	Insulator	CNN1058
	34	Gear	CNR1855
	35	Gear	CNR1856
	36	Gear	CNR1857
	37	Gear	CNR1859
	38	Gear	CNR1860
	39	Gear	CNR1861
	40	Gear	CNR1862
	41	Gear	CNR1864
	42	Gear	CNR1925
	43	Gear	CNR1926
	44	Gear	CNV8980
	45	Gear	CNV8981
	46	Gear	CNV8983
	47	Gear	CNV8984
	48	Gear	CNV8985
	49	Gear	CNV8987
	50	Rack	CNV8995
	51	Rack	CNV8996
	52	Guide	CNV8999
	53	Lever	CNV9000
	54	Arm	CNV9001
*	55	Guide	CNV9534
*	56	Guide	CNV9535
	57	Guide	CNV9003
	58	Guide	CNV9004
	59	Frame Unit	CXC6143
	60	Holder Unit	CXC6145
	61	Motor Unit	CXC6638
	62	Screw	JGZ20P025FTC
	63	Motor Unit	CXC6639
	64	Screw	JGZ20P025FTC
*	65	Chassis Unit	CXC7638
*	66	Case Unit	CXC7640
	67	Bracket Unit	CXC7978
	68	Lever	CND4077
	69	Spring	CBH2750
	70	Screw	JFZ17P025FTC
	71	Washer	YE15FTC
	72	Screw(M2 x 3)	CBA1877
	73	Cover	CNV9643
	74	Arm	CNV9644
	75	Spring	CBL1766
	76	Main PCB Unit(SERVICE)	CXX2316

The gear assembly figure of the Drive Unit


CNR1861
CNV8980
CNV8984
CNR1926
CNR1860
CNR1862
CNV8981
CNV8985
CNR1859

Grease


HOLDER
(CND3245)
(3)
TWO PLACES OF SPRING
(2)
SPREADS ON THE SPACE
(1)
APPLY ON THE SURFACE
OF GEAR (HATCHED AREA)
AND SIDE OF HOLDER
(1)
APPLY ON THE SURFACE OF SHAFT (HATCHED AREA)
HOLDER
GEAR
(1)
(1) : GEM1011
(2) : GEM1043
(3) : GEM1047


(2)
(6)
(6)
(5)
(4)
(4)
(5)
(4)
(4)
(1)
(1)
(5)
(5)
(4)
(4)
(5)
(5)
(4)
(4)
(2)
(4)
SPREADS IT ON THE ENTIRE GEAR.
INSIDE OF HOLE
(4)
INSIDE OF HOLE
(4)
INSIDE OF HOLE
(2)
(2)
SPREADS IT ON TEETH SIDE AND TIP OF GEAR

(1) : GEM1011

(2) : GEM1043

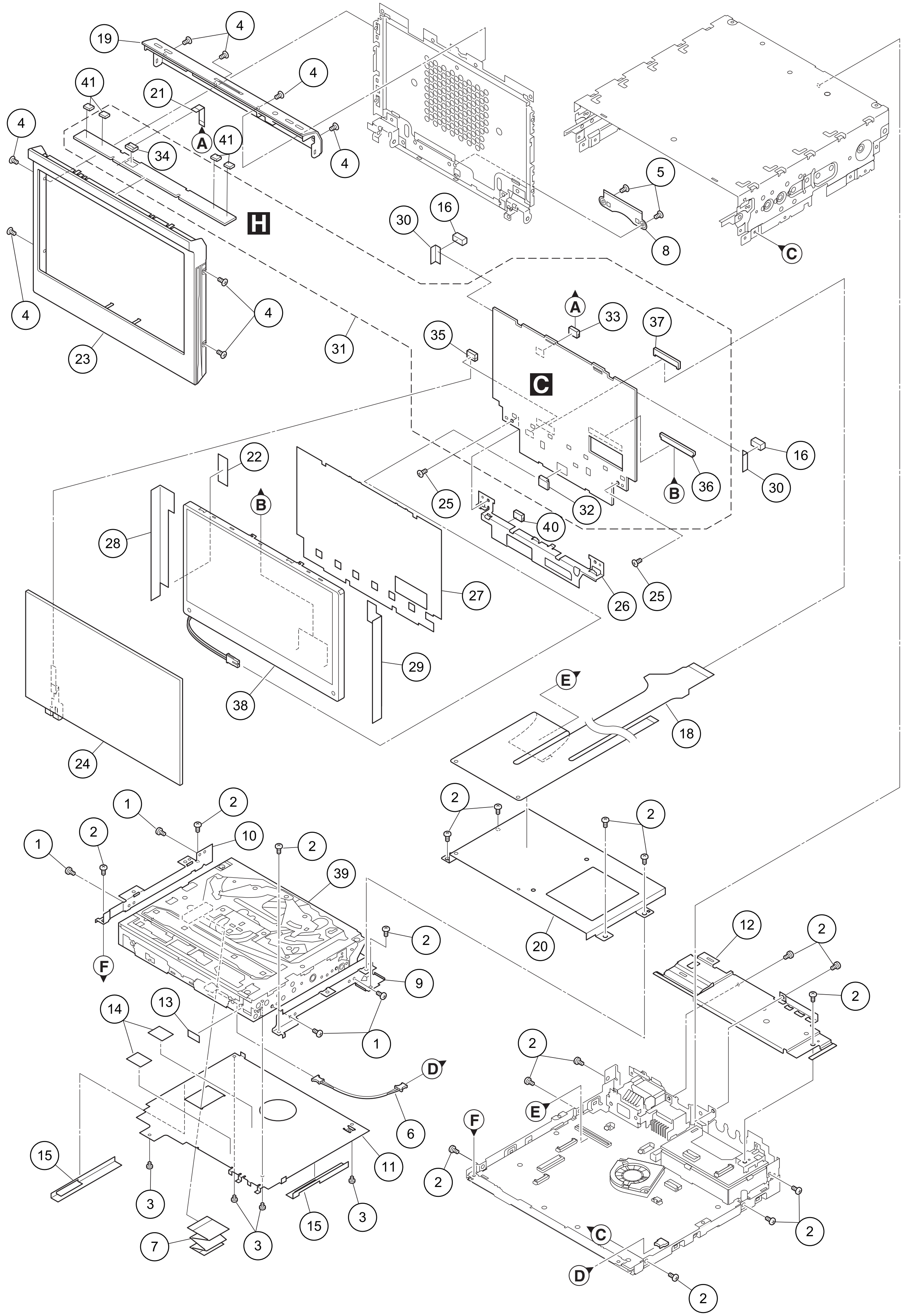
(3) : GEM1047

(4) : GEM1024

(5) : GEM1072

(6) : GEM1071

9.4 EXTERIOR(3)


19
4
4
41
21
4
4
A
41
34
4
H
4
4
5
16
30
8
C
A
33
37
4
35
31
23
C
16
22
36
30
B
25
32
B
40
28
26
25
27
29
E
38
18
24
1
2
2
10
1
2
2
39
2
20
2
12
2
F
9
2
14
13
1
2
E
D
6
E
F
15
11
2
3
15
3
C
2
7
3
D
2

(1)EXTERIOR(3) SECTION PARTS LIST

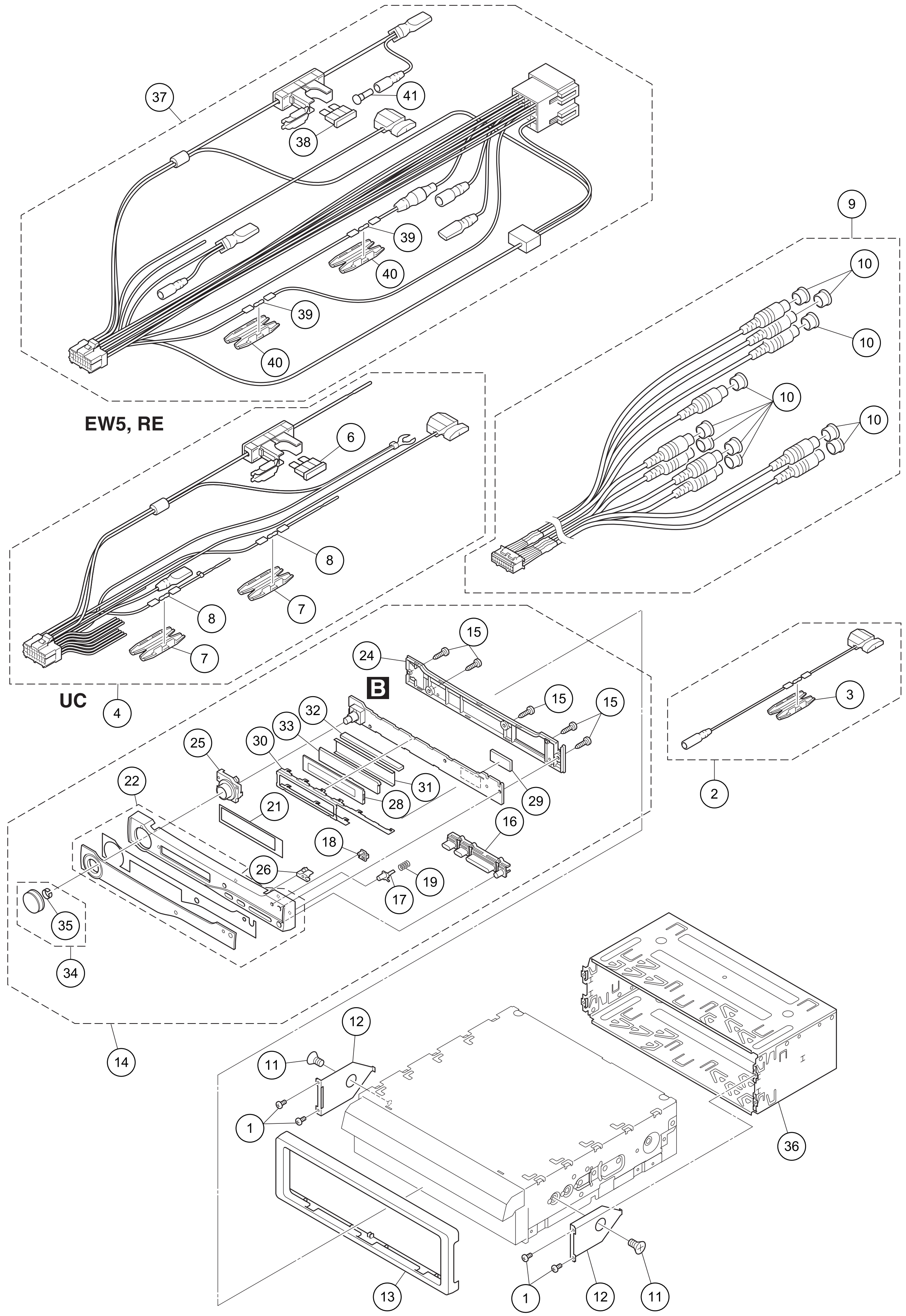
Mark	No.	Description	Part No.
	1	Screw	BMZ20P025FTC
	2	Screw	BMZ26P030FTC
	3	Screw(M2 x 1.4)	CBA1593
	4	Screw(M2 x 2)	CBA1872
	5	Screw(M2 x 1.4)	CBA2042
	6	Cord	CDE8384
	7	Flat Cable	CDE8469
	8	Holder	CND3271
	9	Bracket	CND3842
	10	Bracket	CND3843
	11	Bracket	CND3844
	12	Holder	CND3846
	13	Spacer	CNN1582
	14	Sheet	CNN1698
	15	Insulator	CNN1739
	16	Cushion	CNN1753
	17	•••••	
	18	Flexible PCB	CNQ1085
	19	Cover Unit	See Contrast table(2)
	20	Bracket	CND3845
	21	FFC	CDE8387
	22	Sheet	CNN1694
	23	Grille	See Contrast table(2)
	24	Touch Panel	CSX1115
	25	Screw(M2 x 2)	CBA1872
	26	Holder	CND3850
	27	Insulator	CNN1584
	28	Sheet	CNN1748
	29	Sheet	CNN1749
	30	Sheet	CNN1750
	31	Monitor Unit	CWN2330
	32	Connector(CN5201)	CKS4428
	33	Connector(CN5002)	CKS5035
	34	Connector(CN5901)	CKS5035
	35	Connector(CN5001)	CKS5105
	36	Connector(CN5501)	CKS5111
	37	Connector(CN5003)	CKS5637
	38	LCD Module	CWX3264
	39	DVD Mechanism Module(MS5AVCODE2)	CXK6631
	40	Cushion	CNN1887
	41	Sheet	CNN2026

(2) CONTRAST TABLE

AVH-P5900DVD/XN/UC, AVH-P5900DVD/XNEW5 and AVH-P5900DVD/XN/RE are constructed the same except for the following:

Mark	No.	Description	AVH-P5900DVD/XN/UC	AVH-P5900DVD/XNEW5	AVH-P5900DVD/XN/RE
	19	Cover Unit	CXC7711	CXC7634	CXC7634
	23	Grille	CNS8974	CNS8957	CNS8957

9.5 EXTERIOR(4)


37
41
38
39
40
39
40
9
10
10
10
10
EW5, RE
6
8
8
7
7
UC
4
15
24
B
15
15
32
33
25
30
31
28
29
22
21
18
16
26
19
17
35
34
14
3
2
12
11
1
13
36
1
12
11

(1)EXTERIOR(4) SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	Screw	BMZ20P030FTB
	2	Cord Assy	CDE7321
	3	Cap	CNS1472
	4	Cord Assy	See Contrast table(2)
	5	•••••	
⚠	6	Fuse(10 A)	See Contrast table(2)
	7	Cap	See Contrast table(2)
	8	Resistor	See Contrast table(2)
	9	Cord Assy	CDP1014
	10	Cap	CNV6727
	11	Screw	CMZ50P060FTC
	12	Bracket	CND3855
	13	Panel	CNS8978
	14	Grille Assy	See Contrast table(2)
	15	Screw	BPZ20P080FTB
	16	Button(BAND, SEEK)	CAI1175
	17	Button(DETACH)	CAI1176
	18	Button(RESET)	CAI1177
	19	Spring	CBH2680
	20	•••••	
	21	Sheet	CNN1587

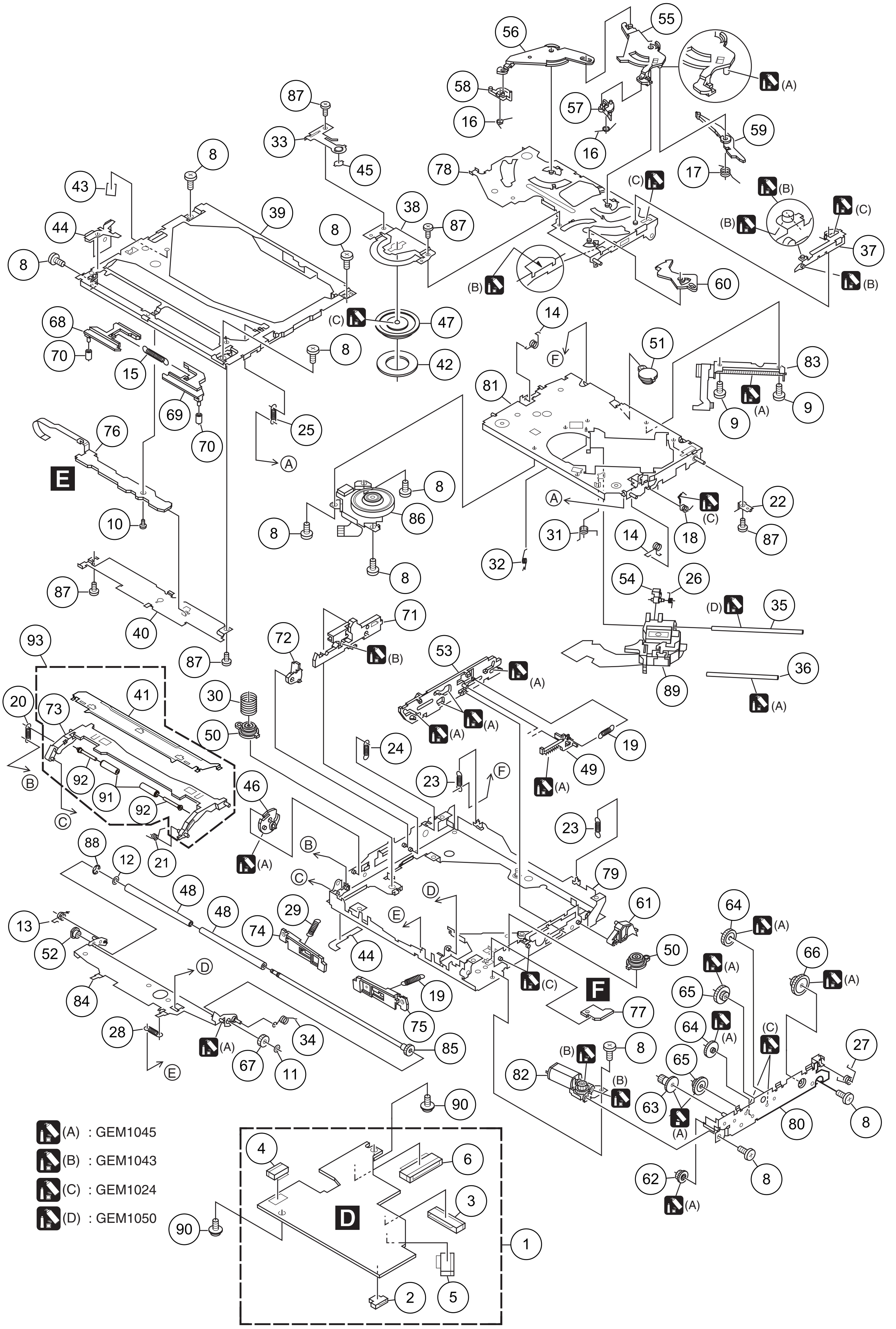
Mark	No.	Description	Part No.
	22	Grille Assy	See Contrast table(2)
	23	•••••	
	24	Cover	CNS8964
	25	Lighting Conductor	CNV9504
	26	Lighting Conductor	CNV9506
	27	•••••	
	28	LCD	CAW1946
	29	Connector(CN4001)	CKS4657
	30	Holder	CND3851
	31	Sheet	CNN1580
	32	Connector	CNV9502
	33	Lighting Conductor	CNV9503
	34	Knob Unit	CXC7631
	35	Spring	CBL1761
	36	Holder	CND3854
	37	Cord Assy	See Contrast table(2)
⚠	38	Fuse(10 A)	See Contrast table(2)
	39	Resistor	See Contrast table(2)
	40	Cap	See Contrast table(2)
	41	Cap	See Contrast table(2)

(2) CONTRAST TABLE

AVH-P5900DVD/XN/UC, AVH-P5900DVD/XNEW5 and AVH-P5900DVD/XN/RE are constructed the same except for the following:

Mark	No.	Description	AVH-P5900DVD/XN/UC	AVH-P5900DVD/XNEW5	AVH-P5900DVD/XN/RE
	4	Cord Assy	CDP1013	Not used	Not used
⚠	6	Fuse(10 A)	CEK1136	Not used	Not used
	7	Cap	CNS1472	Not used	Not used
	8	Resistor	RS1/2PMF102J	Not used	Not used
	14	Grille Assy	CXC7519	CXC7518	CXC7518
	22	Grille Assy	CXC8813	CXC8812	CXC8812
	37	Cord Assy	Not used	CDP1012	CDP1012
⚠	38	Fuse(10 A)	Not used	CEK1136	CEK1136
	39	Resistor	Not used	RS1/2PMF102J	RS1/2PMF102J
	40	Cap	Not used	CNS1472	CNS1472
	41	Cap	Not used	CKX-003	CKX-003

9.6 DVD MECHANISM MODULE


A
B
C
D
E
F
56
55
(A)
58
87
57
16
59
33
16
8
45
78
17
(C)
43
39
38
(B)
(B)
(C)
44
8
87
37
8
(B)
60
(B)
68
(C)
47
14
51
83
70
15
8
42
F
81
9
(A)
9
69
76
25
70
A
E
8
86
A
22
(C)
10
8
31
14
18
87
32
8
54
26
87
(D)
35
40
93
72
71
(B)
53
(A)
87
89
36
(A)
20
41
30
73
(A)
(A)
50
24
19
B
92
23
F
49
91
(A)
92
46
23
C
88
12
21
B
(A)
C
79
48
D
61
48
29
13
74
E
44
64
(A)
52
D
50
19
(C)
(A)
66
(A)
F
65
84
75
77
E
28
(A)
34
64
(A)
(C)
27
85
(B)
8
67
11
82
65
(B)
E
63
80
8
(A)
90
4
6
62
8
3
(A)
D
90
1
2
5

(A) : GEM1045

(B) : GEM1043

(C) : GEM1024

(D) : GEM1050

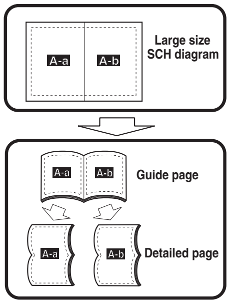
DVD MECHANISM MODULE SECTION PARTS LIST

Mark	No.	Description	Part No.
	1	DVD Core Unit	YWX5005
	2	Connector(CN1852)	CKS4817
	3	Connector(CN1101)	CKS4841
	4	Connector(CN1301)	CKS5017
	5	Connector(CN1201)	CKS5043
	6	Connector(CN1901)	CKS5054
	7	•••••	
	8	Screw	BMZ20P020FTC
	9	Screw	BMZ20P025FNI
	10	Screw	CBA1787
	11	Washer	CBF1038
	12	Washer	CBF1064
	13	Spring	CBH2586
	14	Spring	CBH2588
	15	Spring	CBH2589
	16	Spring	CBH2590
	17	Spring	CBH2591
	18	Spring	CBH2592
	19	Spring	CBH2593
	20	Spring	CBH2596
	21	Spring	CBH2597
	22	Spring	CBL1726
	23	Spring	CBH2599
	24	Spring	CBH2600
	25	Spring	CBH2601
	26	Spring	CBH2926
	27	Spring	CBH2604
	28	Spring	CBH2605
	29	Spring	CBH2710
	30	Spring	CBH2711
	31	Spring	CBH2935
	32	Spring	CBH2890
	33	Spring	CBL1689
	34	Spring	CBH2898
	35	Shaft	CLA4206
	36	Shaft	CLA4701
	37	Lever	CNC9933
	38	Holder	CND2643
	39	Frame	CND2250
	40	Holder	CND2251
	41	Holder	CND3936
	42	Sheet	CNM6883
	43	Sheet	CNM8697
	44	Sheet	CNM9658
	45	Sheet	CNM9407
	46	Cam	CNV7156
	47	Clamper	CNV7158
	48	Roller	CNV7165
	49	Rack	CNV7175
	50	Damper	CNV9061
	51	Damper	CNV9062
	52	Collar	CNV8845
	53	Lever	CNV8865
	54	Rack	CNV9063
	55	Arm	CNV8867
	56	Arm	CNV8868
	57	Arm	CNV9577
	58	Arm	CNV8870
	59	Arm	CNV8871
	60	Arm	CNV8872
	61	Arm	CNV8873
	62	Gear	CNV8874
	63	Gear	CNV8875
	64	Gear	CNV8876
	65	Gear	CNV8877
	66	Gear	CNV8878
	67	Gear	CNV8879
	68	Lever	CNV8903
	69	Lever	CNV8904
	70	Roller	CNV8905
	71	Lever	CNV8908
	72	Arm	CNV8909
	73	Guide	CNV9569
	74	Arm	CNV9116
	75	Arm	CNV9117
	76	Compound Unit(A)	CWX3154
	77	Compound Unit(B)	CWX3394
	78	Arm Unit	CXC7872
	79	Frame Unit	CXC6442
	80	Bracket Unit	CXB8685
	81	Chassis Unit	CXC6443
	82	Motor Unit(LOAD)(M1)	CXC4912
	83	Motor(STEPPING)(M2)	CXM1364
	84	Arm Unit	CXC5486
	85	Roller Unit	CXC5708
	86	Motor(SPDL)(M3)	CXM1362
	87	Screw	JFZ20P018FTC
	88	Washer	YE20FTC
	89	Pickup Unit(Service)	CXX2118
	90	Screw	IMS20P030FTC
	91	Collar	CNV9570
	92	Shaft	CLA4771
	93	Guide Unit	CXC8572

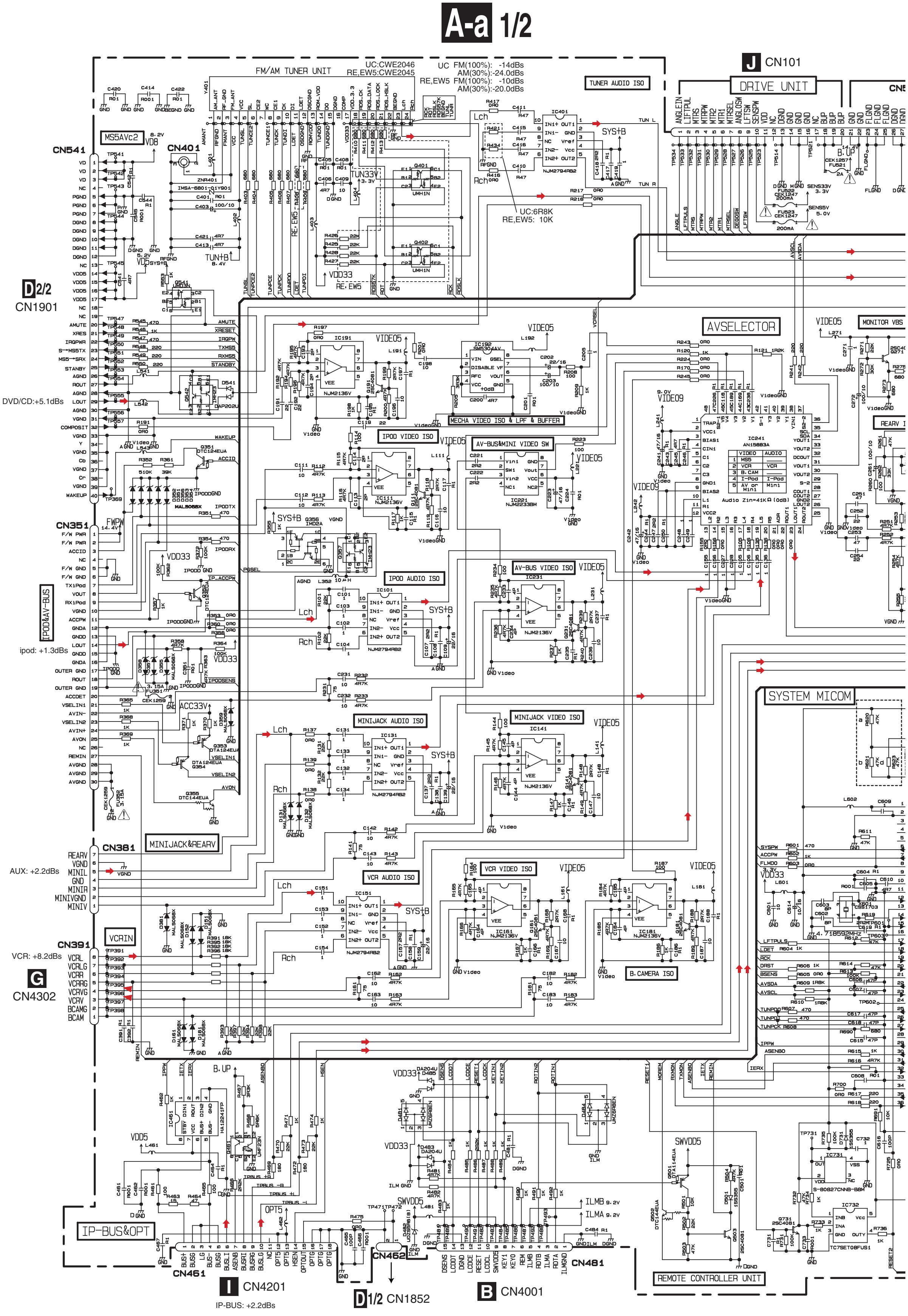
10. SCHEMATIC DIAGRAM

10.1 MOTHER UNIT(SYSTEM PART)(GUIDE PAGE)

Note: When ordering service parts, be sure to refer to " EXPLODED VIEWS AND PARTS LIST" or "ELECTRICAL PARTS LIST".



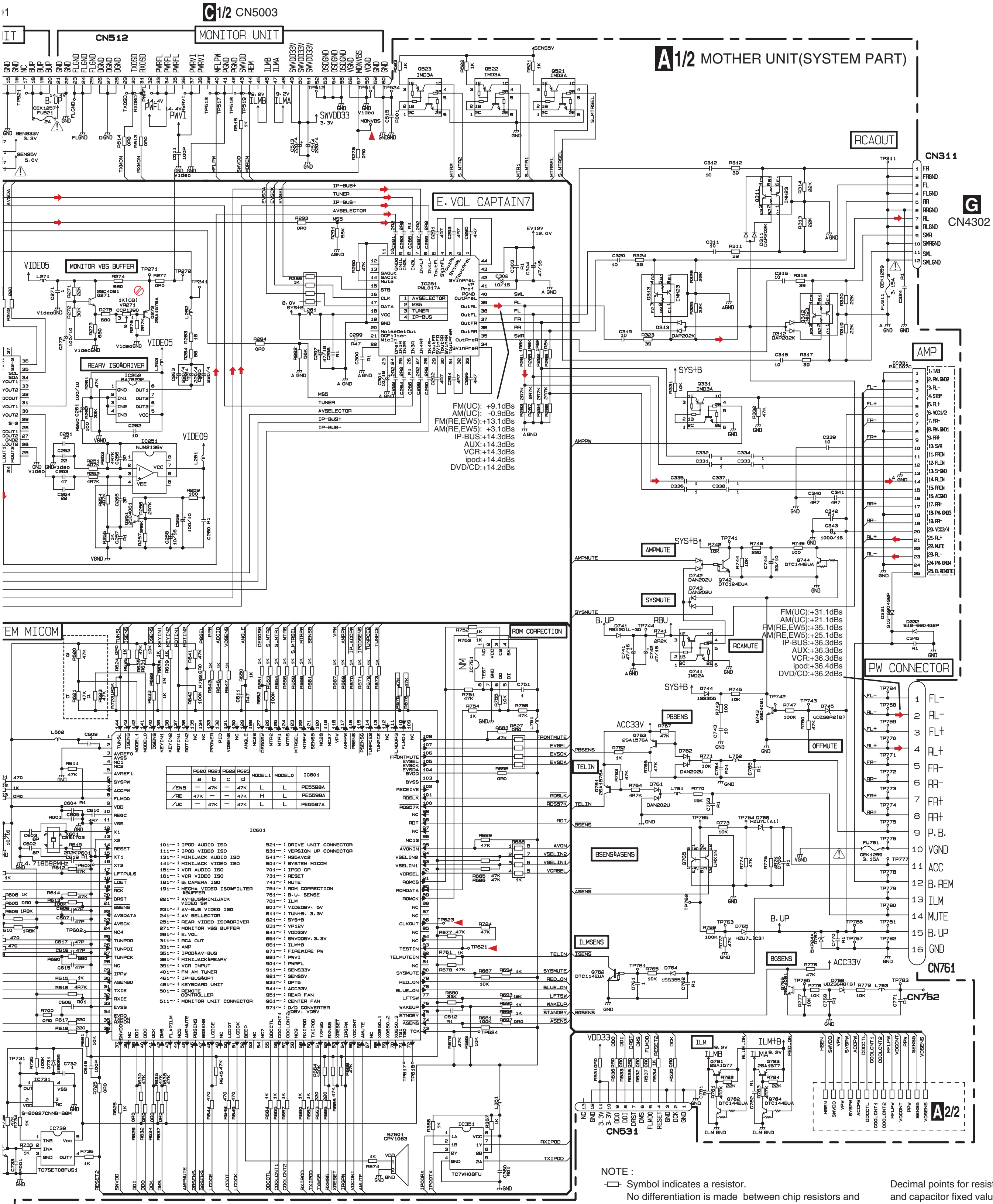
A-a
A-b
Large size SCH diagram
Guide page
Detailed page



A-a 1/2
FM/AM TUNER UNIT
UC:CWE2046
RE,EW5:CWE2045
UC FM(100%): -14dBs
AM(30%):-24.0dBs
RE,EW5 FM(100%): -10dBs
AM(30%):-20.0dBs
TUNER AUDIO ISO
J CN101
DRIVE UNIT
CN541
MS5AVc2
CN401
UC:6R8K
RE,EW5: 10K
D 2/2
CN1901
DVD/CD:+5.1dBs
AVSELECTOR
MONITOR VBS
IPOD VIDEO ISO
AV-BUS&MINI VIDEO SW
MECHA VIDEO ISO & LPF & BUFFER
CN351
IPOD&AV-BUS
ipod: +1.3dBs
IPOD AUDIO ISO
AV-BUS VIDEO ISO
SYSTEM MICOM
MINIJACK AUDIO ISO
MINIJACK VIDEO ISO
CN381
MINIJACK&REARV
AUX: +2.2dBs
CN391
VCRIN
VCR: +8.2dBs
G
CN4302
VCR AUDIO ISO
VCR VIDEO ISO
B.CAMERA ISO
IP-BUS&OPT
CN461
I CN4201
IP-BUS: +2.2dBs
D 1/2 CN1852
CN462
B CN4001
CN481
REMOTE CONTROLLER UNIT

A 1/2

A-b 1/2


C 1/2 CN5003
CN512
MONITOR UNIT
A 1/2 MOTHER UNIT(SYSTEM PART)
RCAOUT
CN311
G CN4302
E.VOL CAPTAIN7
IC281 PML017A
MONITOR VBS BUFFER
VIDEO5
REARV ISO&DRIVER
IC252 BA7603F
IC251 NJM2136V
VIDEO9
AMP
IC331 PAL007C
AMPMUTE
SYSMUTE
RCAMUTE
PBSENS
OFFMUTE
TELIN
BSENS&ASENS
ILMSENS
BGSENS
PW CONNECTOR
CN761
CN762
SYSTEM MICOM
ROM CORRECTION
IC751
IC601
ILM
ILM+B
CN531
A 2/2
IC731 S-80827CNNB-B8M
IC732 TC7SET08FUS1
IC351 TC7WH08FU
BZ601 CPV1063
FM(UC): +9.1dBs
AM(UC): -0.9dBs
FM(RE,EW5):+13.1dBs
AM(RE,EW5): +3.1dBs
IP-BUS:+14.3dBs
AUX:+14.3dBs
VCR:+14.3dBs
ipod:+14.4dBs
DVD/CD:+14.2dBs
FM(UC):+31.1dBs
AM(UC):+21.1dBs
FM(RE,EW5):+35.1dBs
AM(RE,EW5):+25.1dBs
IP-BUS:+36.3dBs
AUX:+36.3dBs
VCR:+36.3dBs
ipod:+36.4dBs
DVD/CD:+36.2dBs
1 FL−
2 RL−
3 FL+
4 RL+
5 FR−
6 RR−
7 FR+
8 RR+
9 P.B.
10 VGND
11 ACC
12 B.REM
13 ILM
14 MUTE
15 B.UP
16 GND
1 FR
2 FRGND
3 FL
4 FLGND
5 RR
6 RRGND
7 RL
8 RLGND
9 SWR
10 SWRGND
11 SWL
12 SWLGND
IC601
101∼ : IPOD AUDIO ISO
111∼ : IPOD VIDEO ISO
131∼ : MINIJACK AUDIO ISO
141∼ : MINIJACK VIDEO ISO
151∼ : VCR AUDIO ISO
161∼ : VCR VIDEO ISO
181∼ : B.CAMERA ISO
191∼ : MECHA VIDEO ISO&FILTER &BUFFER
221∼ : AV-BUS&MINIJACK VIDEO SW
231∼ : AV-BUS VIDEO ISO
241∼ : AV SELLECTOR
251∼ : REAR VIDEO ISO&DRIVER
271∼ : MONITOR VBS BUFFER
281∼ : E.VOL
311∼ : RCA OUT
331∼ : AMP
351∼ : IPOD&AV-BUS
381∼ : MINIJACK&REARV
391∼ : VCR INPUT
401∼ : FM AM TUNER
461∼ : IP-BUS&OPT
481∼ : KEYBOARD UNIT
501∼ : REMOTE CONTROLLER
511∼ : MONITOR UNIT CONNECTOR
521∼ : DRIVE UNIT CONNECTOR
531∼ : VERSION UP CONNECTOR
541∼ : MS5AVc2
601∼ : SYSTEM MICOM
701∼ : IPOD CP
731∼ : RESET
741∼ : MUTE
751∼ : ROM CORRECTION
761∼ : B.U、SENSE
781∼ : ILM
801∼ : VIDEO9V、5V
811∼ : TUN+B、3.3V
821∼ : SYS+B
831∼ : VP12V
841∼ : VDD33V
851∼ : SWVDD5V、3.3V
861∼ : ILM+B
871∼ : FIREWIRE PW
891∼ : PWVI
901∼ : PWRFL
911∼ : SENS33V
921∼ : SENS5V
931∼ : OPT5
941∼ : ACC33V
951∼ : REAR FAN
961∼ : CENTER FAN
971∼ : D/D CONVERTER VD8V、VD5V

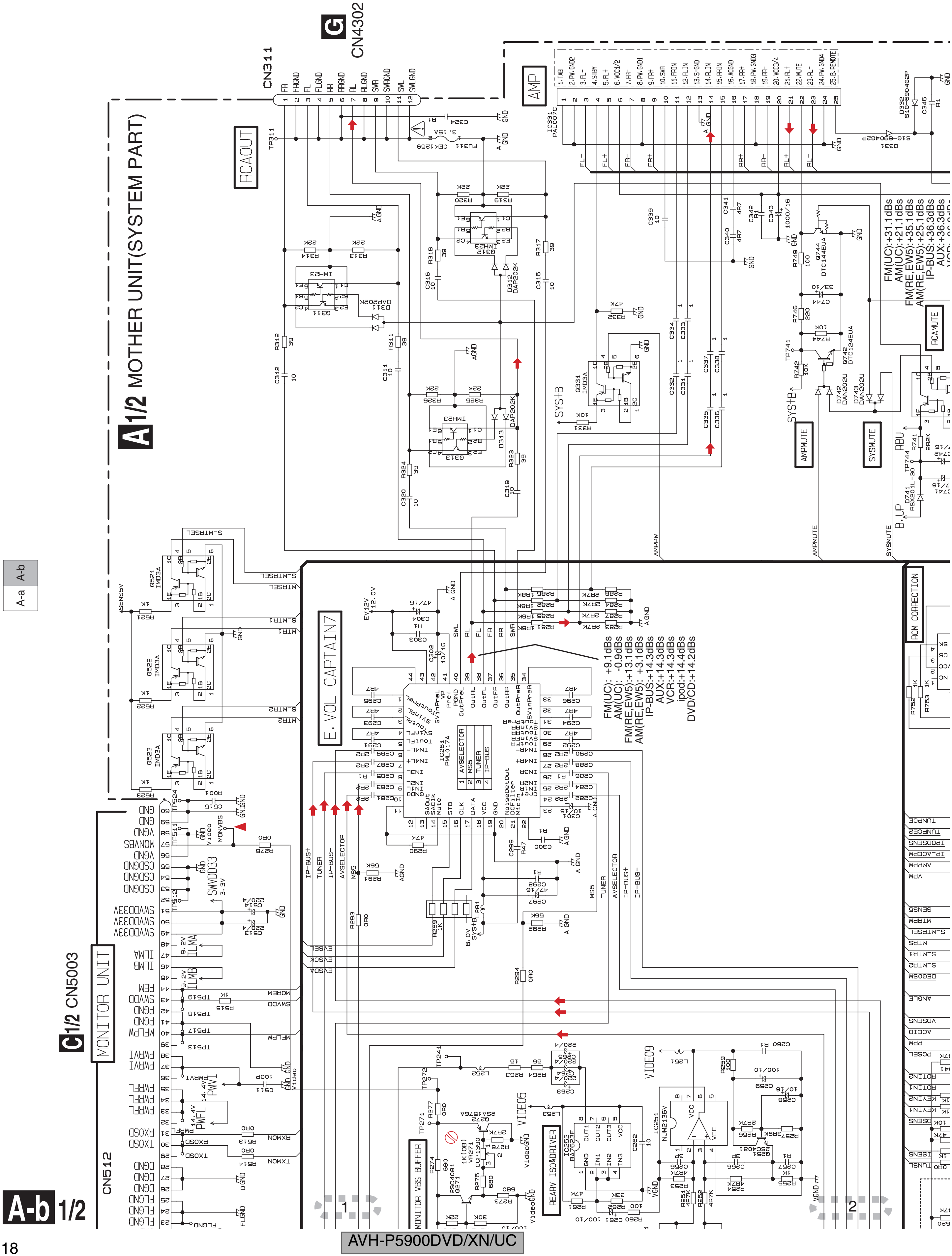
	R620	R621	R622	R623	MODEL1	MODEL0	IC601
	a	b	c	d			
/EW5	—	47K	—	47K	L	L	PE5598A
/RE	47K	—	—	47K	H	L	PE5598A
/UC	—	47K	—	47K	L	L	PE5597A

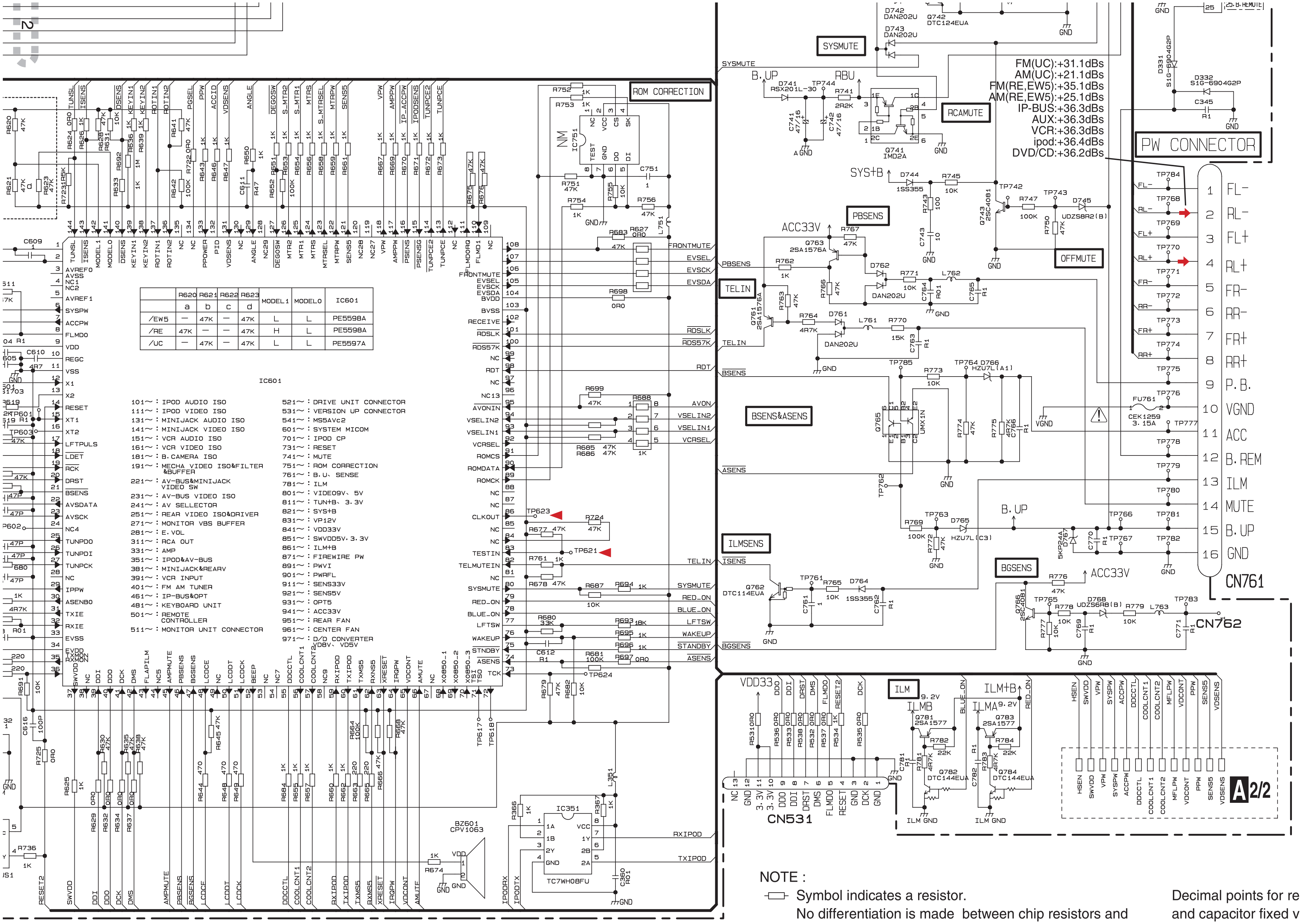
The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

NOTE :
▭ Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.
⊣⊢ Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as :
2.2 → 2R2
0.022 → R022

A 1/2


A-b 1/2
A 1/2 MOTHER UNIT(SYSTEM PART)
C 1/2 CN5003
MONITOR UNIT
CN512
G CN4302
CN311
RCAOUT
AMP
IC331 PAL007C
E. VOL CAPTAIN7
IC281 PML017A
AVSELECTOR
MS5
TUNER
IP-BUS
FM(UC): +9.1dBs
AM(UC): -0.9dBs
FM(RE,EW5):+13.1dBs
AM(RE,EW5): +3.1dBs
IP-BUS:+14.3dBs
AUX:+14.3dBs
VCR:+14.4dBs
ipod:+14.4dBs
DVD/CD:+14.2dBs
FM(UC):+31.1dBs
AM(UC):+21.1dBs
FM(RE,EW5):+35.1dBs
AM(RE,EW5):+25.1dBs
IP-BUS:+36.3dBs
AUX:+36.3dBs
RCAMUTE
AMPMUTE
SYSMUTE
ROM CORRECTION
MONITOR VBS BUFFER
REARV ISO&DRIVER
IC252 BA7623F
IC251 NJM2136V
VIDEO5
VIDEO9
SYS+B
B.UP
RBU
A-a
A-b


PW CONNECTOR
CN761
1 FL-
2 RL-
3 FL+
4 RL+
5 FR-
6 RR-
7 FR+
8 RR+
9 P.B.
10 VGND
11 ACC
12 B.REM
13 ILM
14 MUTE
15 B.UP
16 GND
CN762
FM(UC):+31.1dBs
AM(UC):+21.1dBs
FM(RE,EW5):+35.1dBs
AM(RE,EW5):+25.1dBs
IP-BUS:+36.3dBs
AUX:+36.3dBs
VCR:+36.3dBs
ipod:+36.4dBs
DVD/CD:+36.2dBs
SYSMUTE
RCAMUTE
PBSENS
OFFMUTE
TELIN
BSENS&ASENS
ILMSENS
BGSENS
ROM CORRECTION
IC751
NM
ILM
ILM+B
ILMA 9.2V
ILMB 9.2V
CN531
VDD33
A 2/2
IC601
IC351
TC7WH08FU
BZ601
CPV1063
FU761
CEK1259
3.15A
ACC33V
SYS+B
B.UP
RBU

	R620	R621	R622	R623	MODEL1	MODEL0	IC601
	a	b	c	d			
/EW5	—	47K	—	47K	L	L	PE5598A
/RE	47K	—	—	47K	H	L	PE5598A
/UC	—	47K	—	47K	L	L	PE5597A

IC601

101～ : IPOD AUDIO ISO
111～ : IPOD VIDEO ISO
131～ : MINIJACK AUDIO ISO
141～ : MINIJACK VIDEO ISO
151～ : VCR AUDIO ISO
161～ : VCR VIDEO ISO
181～ : B.CAMERA ISO
191～ : MECHA VIDEO ISO&FILTER &BUFFER
221～ : AV-BUS&MINIJACK VIDEO SW
231～ : AV-BUS VIDEO ISO
241～ : AV SELLECTOR
251～ : REAR VIDEO ISO&DRIVER
271～ : MONITOR VBS BUFFER
281～ : E.VOL
311～ : RCA OUT
331～ : AMP
351～ : IPOD&AV-BUS
381～ : MINIJACK&REARV
391～ : VCR INPUT
401～ : FM AM TUNER
461～ : IP-BUS&OPT
481～ : KEYBOARD UNIT
501～ : REMOTE CONTROLLER
511～ : MONITOR UNIT CONNECTOR
521～ : DRIVE UNIT CONNECTOR
531～ : VERSION UP CONNECTOR
541～ : MS5AVc2
601～ : SYSTEM MICOM
701～ : IPOD CP
731～ : RESET
741～ : MUTE
751～ : ROM CORRECTION
761～ : B.U、SENSE
781～ : ILM
801～ : VIDEO9V、5V
811～ : TUN+B、3.3V
821～ : SYS+B
831～ : VP12V
841～ : VDD33V
851～ : SWVDD5V,3.3V
861～ : ILM+B
871～ : FIREWIRE PW
891～ : PWVI
901～ : PWRFL
911～ : SENS33V
921～ : SENS5V
931～ : OPT5
941～ : ACC33V
951～ : REAR FAN
961～ : CENTER FAN
971～ : D/D CONVERTER VD8V、VD5V

The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

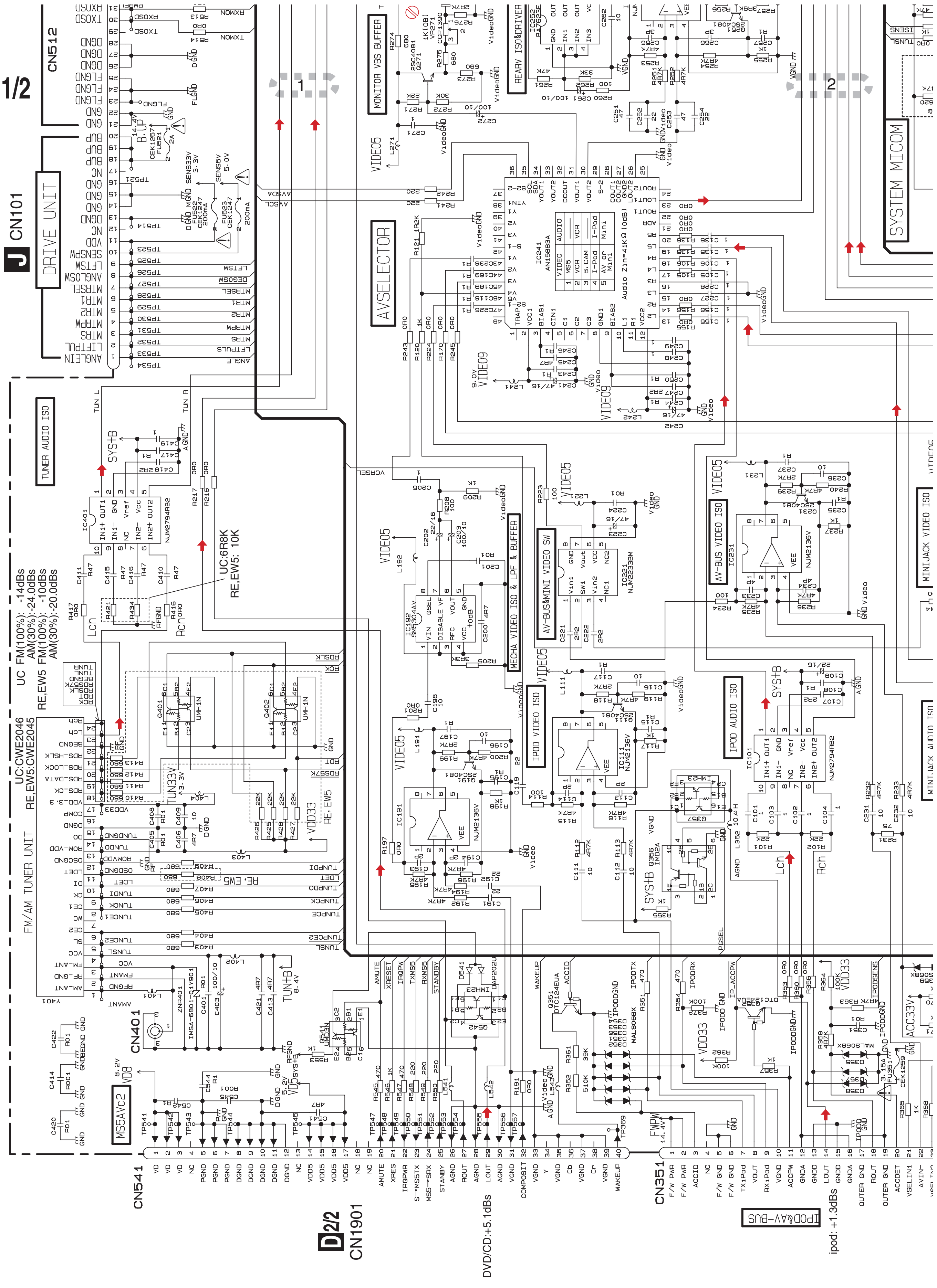
NOTE :
▭ Symbol indicates a resistor.
No differentiation is made between chip resistors and discrete resistors.
⊣⊢ Symbol indicates a capacitor.
No differentiation is made between chip capacitors and discrete capacitors.

Decimal points for resistor and capacitor fixed values are expressed as :
2.2 → 2R2
0.022 → R022

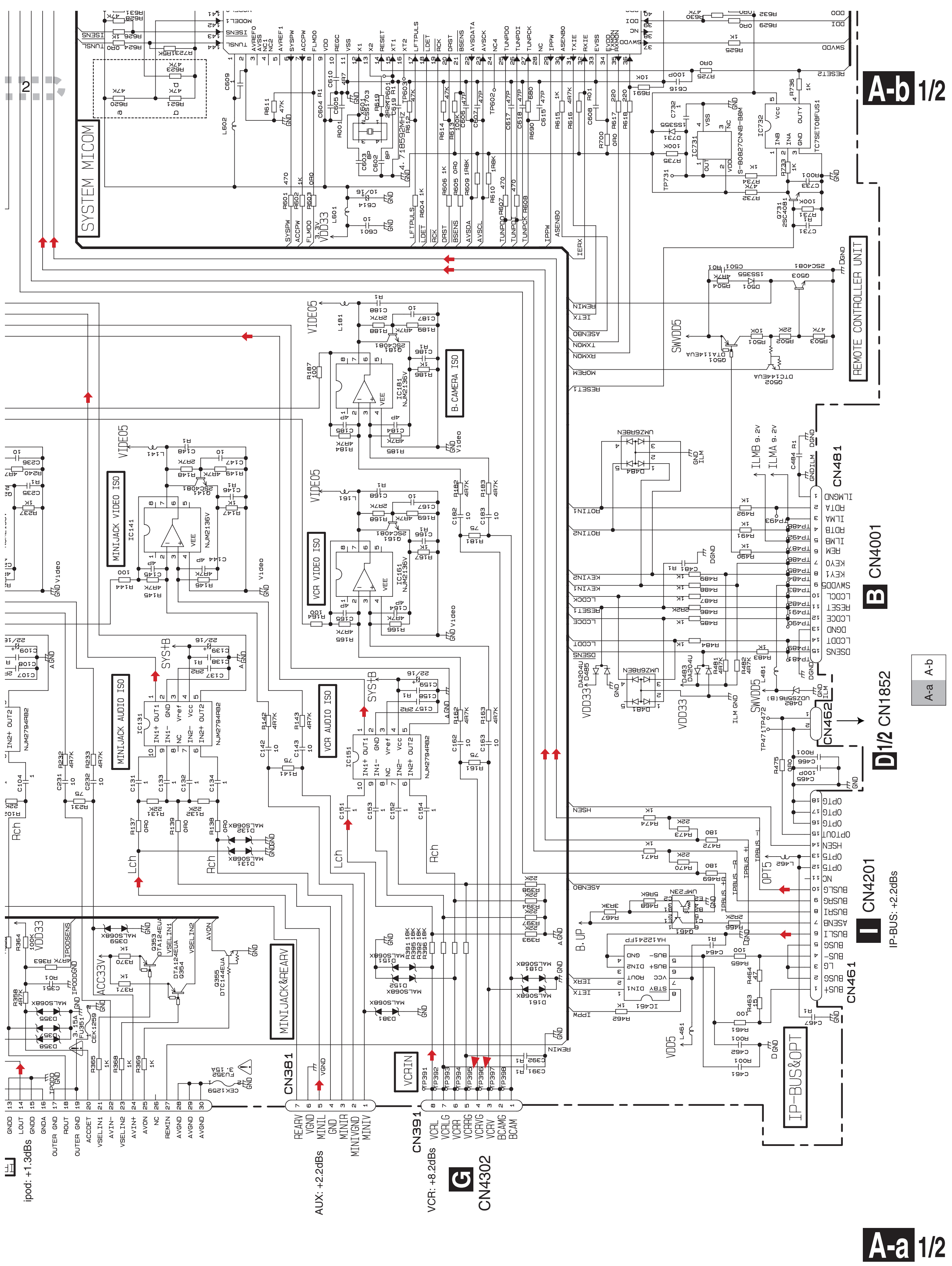
A-a A-b

A-b 1/2

A-b 1/2

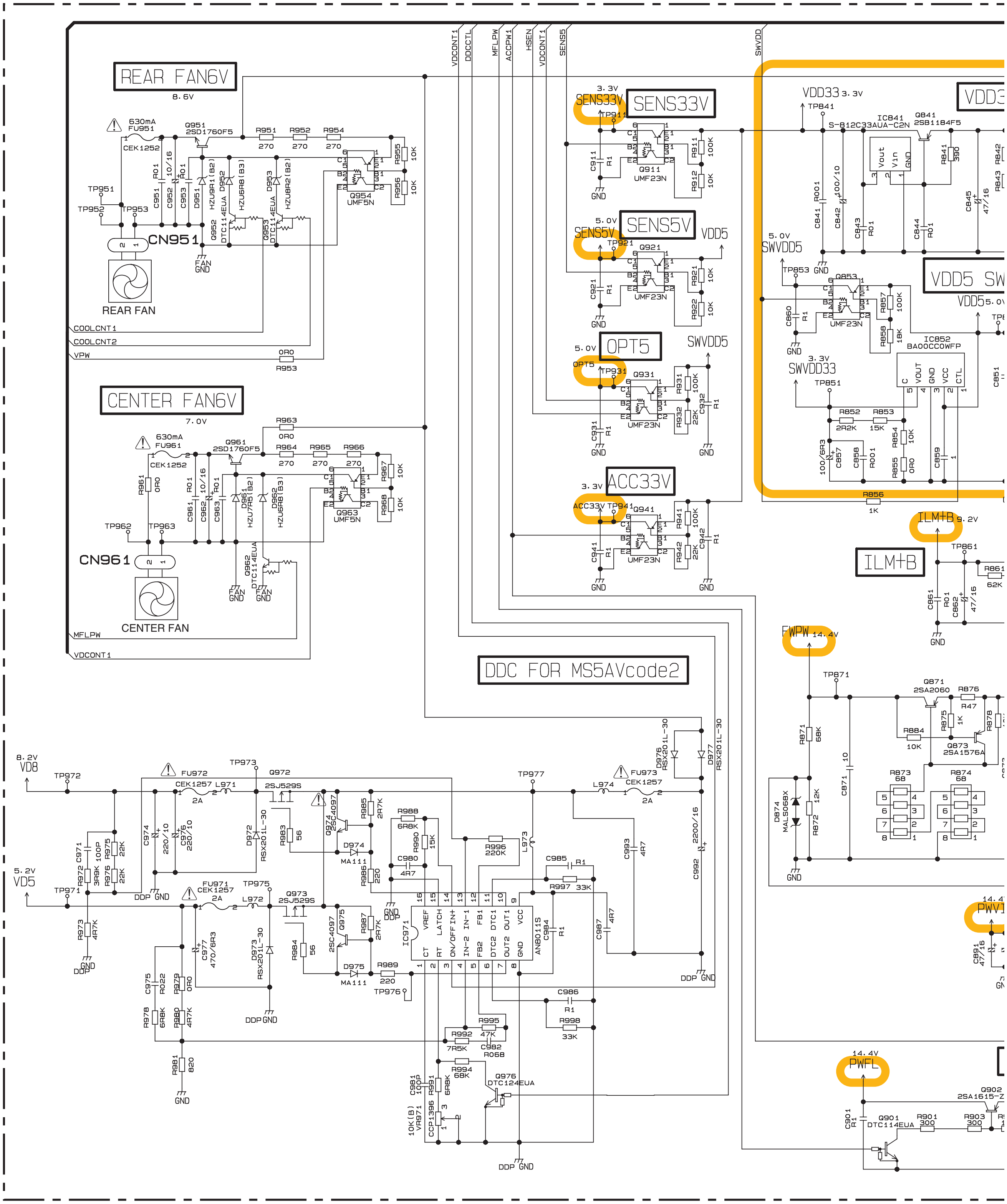

J CN101
DRIVE UNIT
CN512
SYSTEM MICOM
MONITOR VBS BUFFER
REARV ISO&DRIVER
AVSELECTOR
IC241 AN15883A
TUNER AUDIO ISO
IC401 NJM2794RB2
UC FM(100%): -14dBs
AM(30%):-24.0dBs
RE,EW5 FM(100%): -10dBs
AM(30%):-20.0dBs
UC:6R8K
RE,EW5: 10K
UC:CWE2046
RE,EW5:CWE2045
FM/AM TUNER UNIT
CN401
MECHA VIDEO ISO & LPF & BUFFER
IC192 SM5304AV
AV-BUS&MINI VIDEO SW
IC221 NJM2233BM
IPOD VIDEO ISO
IC111 NJM2136V
IC191 NJM2136V
AV-BUS VIDEO ISO
IC231 NJM2136V
IPOD AUDIO ISO
IC101 NJM2794RB2
MINIJACK VIDEO ISO
MS5AVc2
CN541
CN351
D 2/2 CN1901
DVD/CD:+5.1dBs
ipod: +1.3dBs
IPOD&AV-BUS
1
2
3
4
A
B
C
D
E
F

A-a 1/2


A-b 1/2
SYSTEM MICOM
REMOTE CONTROLLER UNIT
B.CAMERA ISO
MINIJACK VIDEO ISO
VCR VIDEO ISO
MINIJACK AUDIO ISO
VCR AUDIO ISO
MINIJACK&REARV
VCRIN
IP-BUS&OPT
CN381
CN391
CN461
CN481
CN462
B CN4001
I CN4201
IP-BUS: +2.2dBs
D1/2 CN1852
G CN4302
ipod: +1.3dBs
AUX: +2.2dBs
VCR: +8.2dBs
A-b
A-a
A-a 1/2

10.2 MOTHER UNIT(POWER SUPPLY PART)(GUIDE PAGE)

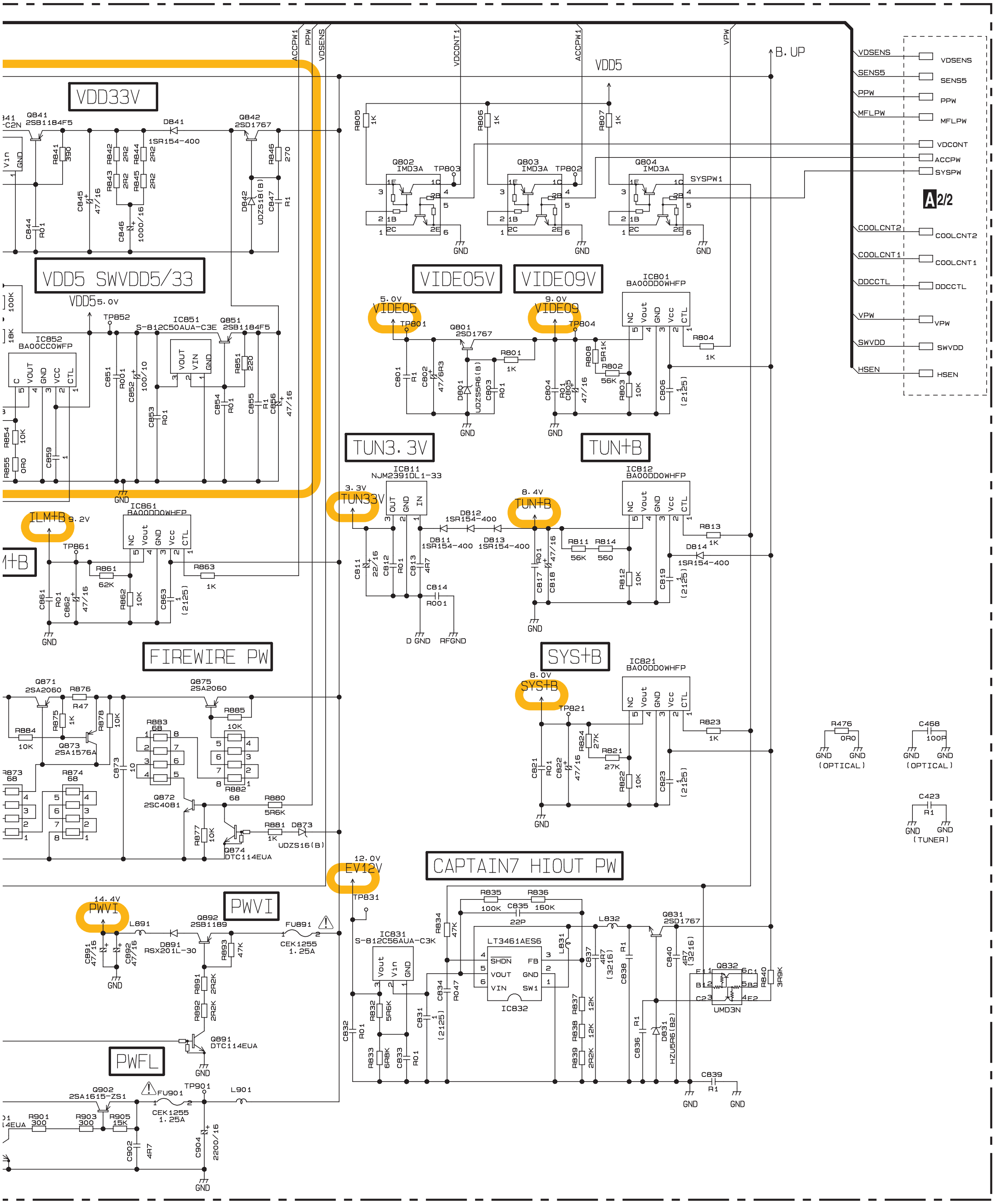
A-a 2/2


REAR FAN6V
8.6V
630mA
FU951
CEK1252
Q951
2SD1760F5
R951 270
R952 270
R954 270
R955 10K
R956 10K
Q954 UMF5N
TP951
TP952
TP953
C951 R01
C952 10/16
C953 R01
D951 HZU9R1(B2)
D952 HZU6R8(B3)
D953 HZU8R2(B2)
Q952 DTC114EUA
Q953 DTC114EUA
CN951
FAN GND
REAR FAN
COOLCNT1
COOLCNT2
VPW
0R0 R953
CENTER FAN6V
7.0V
630mA
FU961
CEK1252
Q961 2SD1760F5
R963 0R0
R964 270
R965 270
R966 270
R967 10K
R968 10K
Q963 UMF5N
R961 0R0
C961 R01
C962 10/16
C963 R01
D961 HZU7R5(B2)
D962 HZU6R8(B3)
TP962
TP963
CN961
Q962 DTC114EUA
CENTER FAN
MFLPW
VDCONT1
VDCONT1
DDCCTL
MFLPW
ACCPW1
HSEN
VDCONT1
SENS5
SWVDD
SENS33V
3.3V
TP911
Q911 UMF23N
C911 R1
R911 100K
R912 10K
GND
SENS5V
5.0V
TP921
Q921 UMF23N
C921 R1
R921 10K
R922 10K
VDD5
OPT5
5.0V
TP931
Q931 UMF23N
C931 R1
R931 100K
R932 22K
C932 R1
SWVDD5
ACC33V
3.3V
TP941
Q941 UMF23N
C941 R1
R941 100K
R942 22K
C942 R1
VDD33 3.3V
TP841
IC841 S-812C33AUA-C2N
Q841 2SB1184F5
Vout Vin GND
R841 390
R842
R843
C841 R001
C842 100/10
C843 R01
C844 R01
C845 47/16
5.0V SWVDD5
TP853 GND
Q853 UMF23N
C860 R1
R857 100K
R858 18K
VDD5 SW
VDD5 5.0V
3.3V SWVDD33
TP851
IC852 BA00CC0WFP
C VOUT GND VCC CTL
R852 2R2K
R853 15K
R854 10K
R855 0R0
C857 100/6R3
C858 R001
C859 R1
C851
R856 1K
ILM+B 9.2V
TP861
ILM+B
R861 62K
C861 R01
C862 47/16
GND
FWPW 14.4V
TP871
Q871 2SA2060
R876 R47
R875 1K
R878
R884 10K
Q873 2SA1576A
R871 68K
R872 12K
D874 MALS068X
C871 10
R873 68
R874 68
GND
DDC FOR MS5AVcode2
8.2V VD8
TP972
TP973
FU972 CEK1257 2A
L971
Q972 2SJ529S
C971 100P
R975 22K
R976 22K
R972 3R9K
C974 220/10
C976 220/10
D972 RSX201L-30
R983 56
Q974 2SC4097
R985 2R7K
R988 6R8K
R990 15K
C980 4R7
D974 MA111
R986 220
5.2V VD5
TP971
DDP GND
FU971 CEK1257 2A
TP975
L972
Q973 2SJ529S
R973 4R7K
C977 470/6R3
D973 RSX201L-30
R984 56
Q975 2SC4097
R987 2R7K
D975 MA111
R989 220
TP976
C975 R022
R979 0R0
R978 6R8K
R980 4R7K
R981 820
GND
IC971 AN8011S
VREF LATCH IN+ FB1 DTC1 OUT1 VCC
CT RT ON/OFF IN-2 FB2 DTC2 OUT2 GND
IN-1
R996 220K
L973
TP977
L974
FU973 CEK1257 2A
D976 RSX201L-30
D977 RSX201L-30
C992 2200/16
C993 4R7
C985 R1
R997 33K
C984 R1
C987 4R7
C986 R1
R998 33K
R995 47K
R992 7R5K
C982 R068
R994 68K
Q976 DTC124EUA
C981 100P
R991 6R8K
VR971 10K(B) CCP1396
DDP GND
14.4V PWV
C891 47/16
14.4V PWFL
Q902 2SA1615-Z
C901 R1
Q901 DTC114EUA
R901 300
R903 300

A 2/2

A-b 2/2

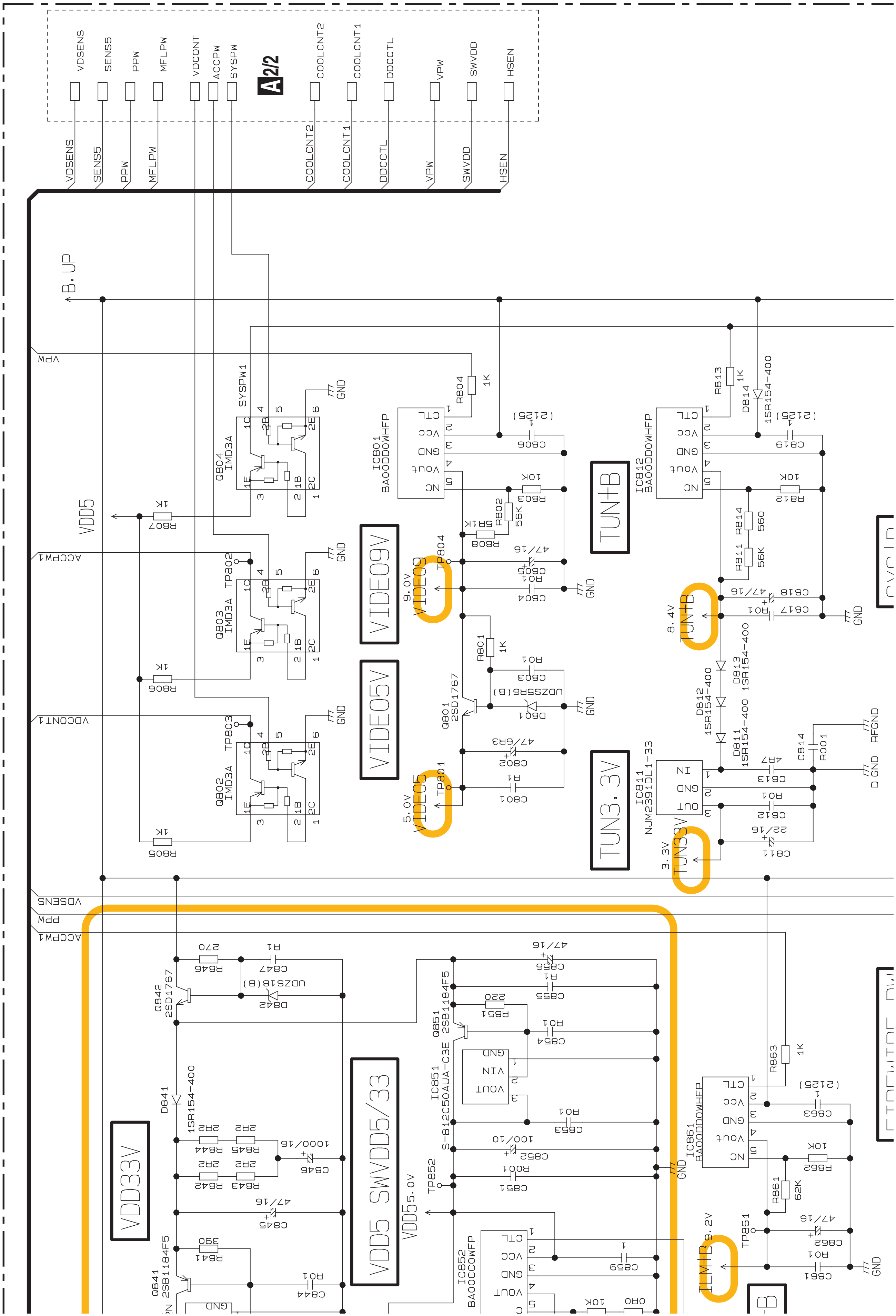
A 2/2 MOTHER UNIT(POWER SUPPLY PART)

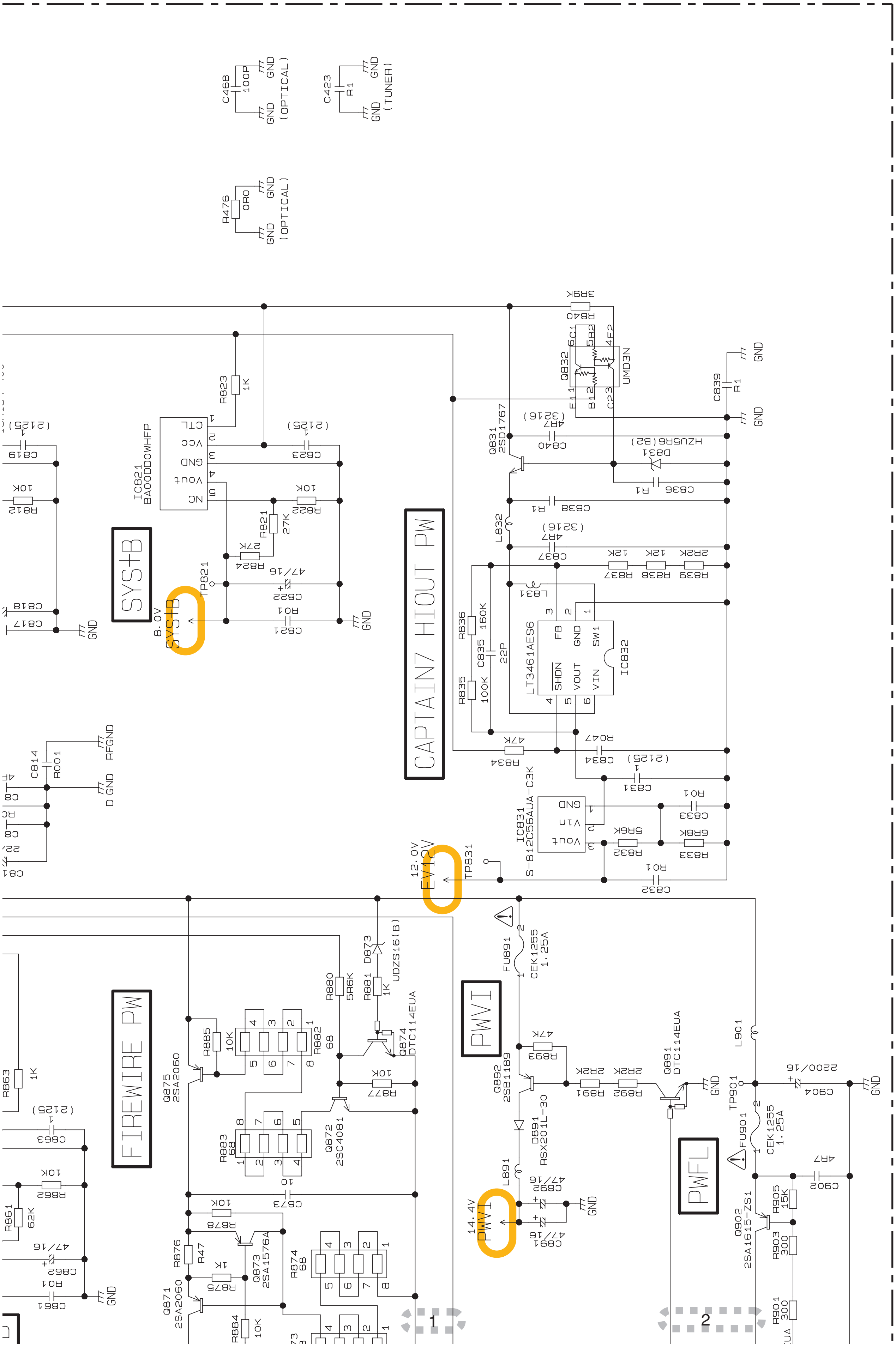

VDD33V
VDD5 SWVDD5/33
VIDEO5V
VIDEO9V
TUN3.3V
TUN+B
FIREWIRE PW
SYS+B
CAPTAIN7 HIOUT PW
PWVI
PWFL
B.UP
VDD5
VDSENS
SENS5
PPW
MFLPW
VDCONT
ACCPW
SYSPW
COOLCNT2
COOLCNT1
DDCCTL
VPW
SWVDD
HSEN
A 2/2
5.0V VIDEO5
9.0V VIDEO9
3.3V TUN33V
8.4V TUN+B
8.0V SYS+B
12.0V EV12V
14.4V PWVI
ILM+B 9.2V
Q841 2SB1184F5
Q842 2SD1767
D841 1SR154-400
D842 UDZS18(B)
IC851 S-812C50AUA-C3E
Q851 2SB1184F5
IC852 BA00CC0WFP
IC861 BA00DD0WHFP
Q802 IMD3A
Q803 IMD3A
Q804 IMD3A
IC801 BA00DD0WHFP
Q801 2SD1767
D801 UDZS5R6(B)
IC811 NJM2391DL1-33
D811 1SR154-400
D812 1SR154-400
D813 1SR154-400
D814 1SR154-400
IC812 BA00DD0WHFP
IC821 BA00DD0WHFP
Q871 2SA2060
Q873 2SA1576A
Q875 2SA2060
Q872 2SC4081
Q874 DTC114EUA
D873 UDZS16(B)
Q892 2SB1189
D891 RSX201L-30
FU891 CEK1255 1.25A
Q891 DTC114EUA
Q902 2SA1615-ZS1
FU901 CEK1255 1.25A
IC831 S-812C56AUA-C3K
IC832 LT3461AES6
Q831 2SD1767
Q832 UMD3N
D831 HZU5R6(B2)
R476 0R0 GND GND (OPTICAL)
C468 100P GND GND (OPTICAL)
C423 R1 GND GND (TUNER)
D GND
RFGND
GND

⬭ : The power supply is shown with the marked box.

A 2/2

A 2/2 MOTHER UNIT(POWER SUPPLY PART)


A 2/2
VDSENS
SENS5
PPW
MFLPW
VDCONT
ACCPW
SYSPW
COOLCNT2
COOLCNT1
DDCCTL
VPW
SWVDD
HSEN
B.UP
VDD5
VPW
ACCPW1
VDCONT1
VDSENS
PPW
ACCPW1
R807 1K
R806 1K
R805 1K
Q804 IMD3A
SYSPW1
Q803 IMD3A
TP802
Q802 IMD3A
TP803
GND
IC801 BA00DD0WHFP
CTL VCC GND Vout NC
R804 1K
C806 (2125)
R803 10K
R802 56K
R808 5R1K
9.0V VIDEO9
TP804
C805 47/16
C804 R01
VIDEO9V
VIDEO5V
R801 1K
C803 R01
D801 UDZS5R6(B)
Q801 2SD1767
C802 47/6R3
C801 R1
5.0V VIDEO5
TP801
TUN+B
TUN3.3V
IC812 BA00DD0WHFP
R813 1K
D814 1SR154-400
C819 (2125)
R812 10K
R814 560
R811 56K
C818 47/16
C817 R01
8.4V TUN+B
D813 1SR154-400
D812 1SR154-400
D811 1SR154-400
IC811 NJM2391DL1-33
IN GND OUT
C813 4R7
C814 R001
RFGND
D GND
C812 R01
C811 22/16
3.3V TUN3.3V
Q842 2SD1767
R846 270
C847 R1
D842 UDZS18(B)
D841 1SR154-400
R844 2R2
R845 2R2
R842 2R2
R843 2R2
C846 1000/16
C845 47/16
Q841 2SB1184F5
R841 390
C844 R01
VDD33V
VDD5 SWVDD5/33
VDD5 5.0V
TP852
Q851 2SB1184F5
R851 220
C856 47/16
C855 R1
C854 R01
IC851 S-812C50AUA-C3E
VOUT VIN GND
C853 R01
C852 100/10
C851 R001
IC852 BA00CC0WFP
CTL VCC GND VOUT
C859 1
10K
0R0
IC861 BA00DD0WHFP
R863 1K
C863 (2125)
R862 10K
R861 62K
9.2V TLM+B
TP861
C862 47/16
C861 R01
GND



SYS+B
8.0V
CAPTAIN7 HIOUT PW
FIREWIRE PW
PWVI
PWFL
12.0V
EV12V
14.4V
IC821
BA00DD0WHFP
IC831
S-812C56AUA-C3K
IC832
LT3461AES6
Q831
2SD1767
Q832
UMD3N
Q871
2SA2060
Q872
2SC4081
Q873
2SA1576A
Q874
DTC114EUA
Q875
2SA2060
Q891
DTC114EUA
Q892
2SB1189
Q902
2SA1615-ZS1
D831
HZU5R6(B2)
D873
UDZS16(B)
D891
RSX201L-30
FU891
CEK1255
1.25A
FU901
CEK1255
1.25A
L831
L832
L891
L901
TP821
TP831
TP901
C468
100P
GND
(OPTICAL)
R476
0R0
C423
R1
(TUNER)
GND
1
2

: The power supply is shown with the marked box.

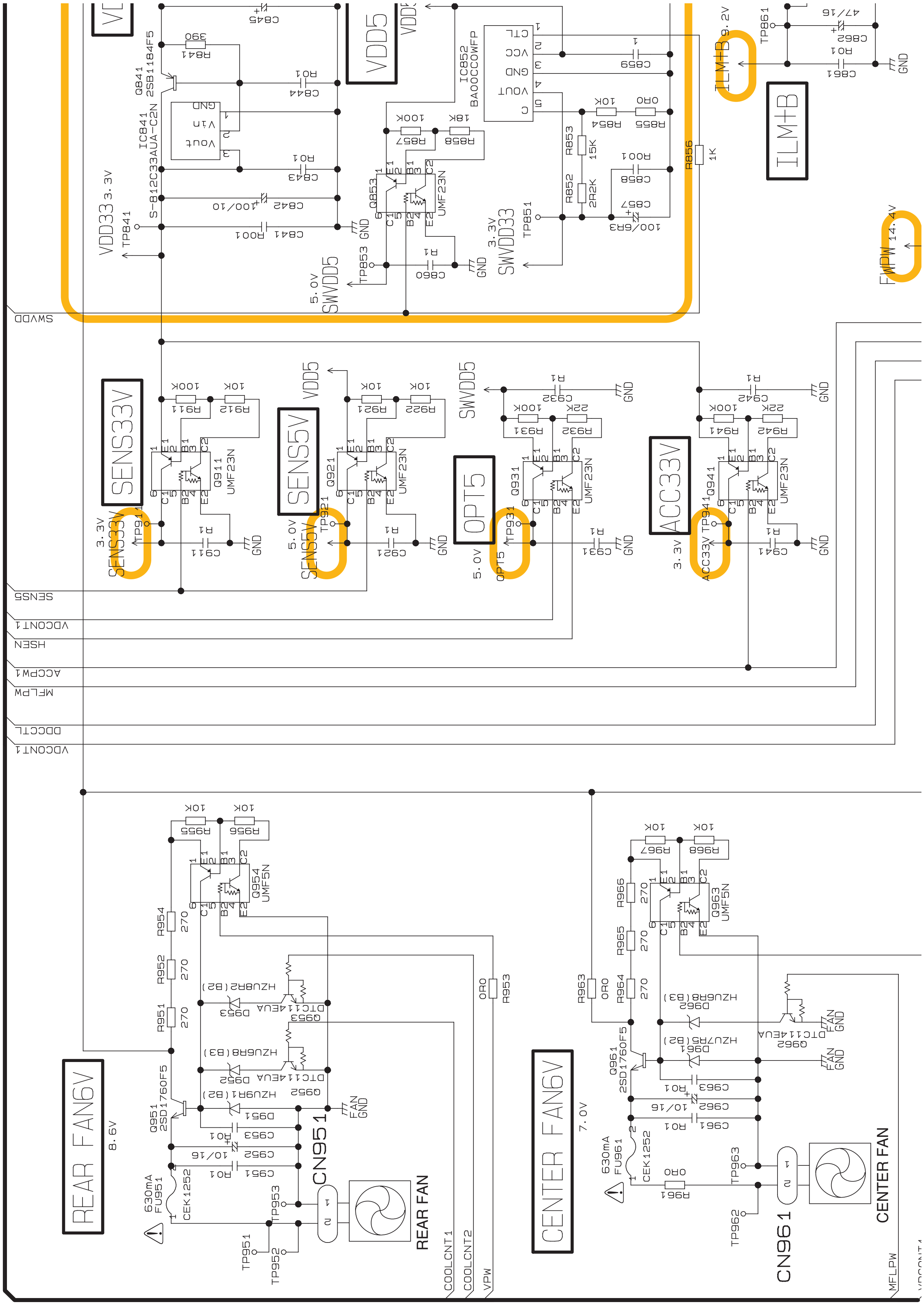
A B C D E F

A-a A-b

A B C D E F

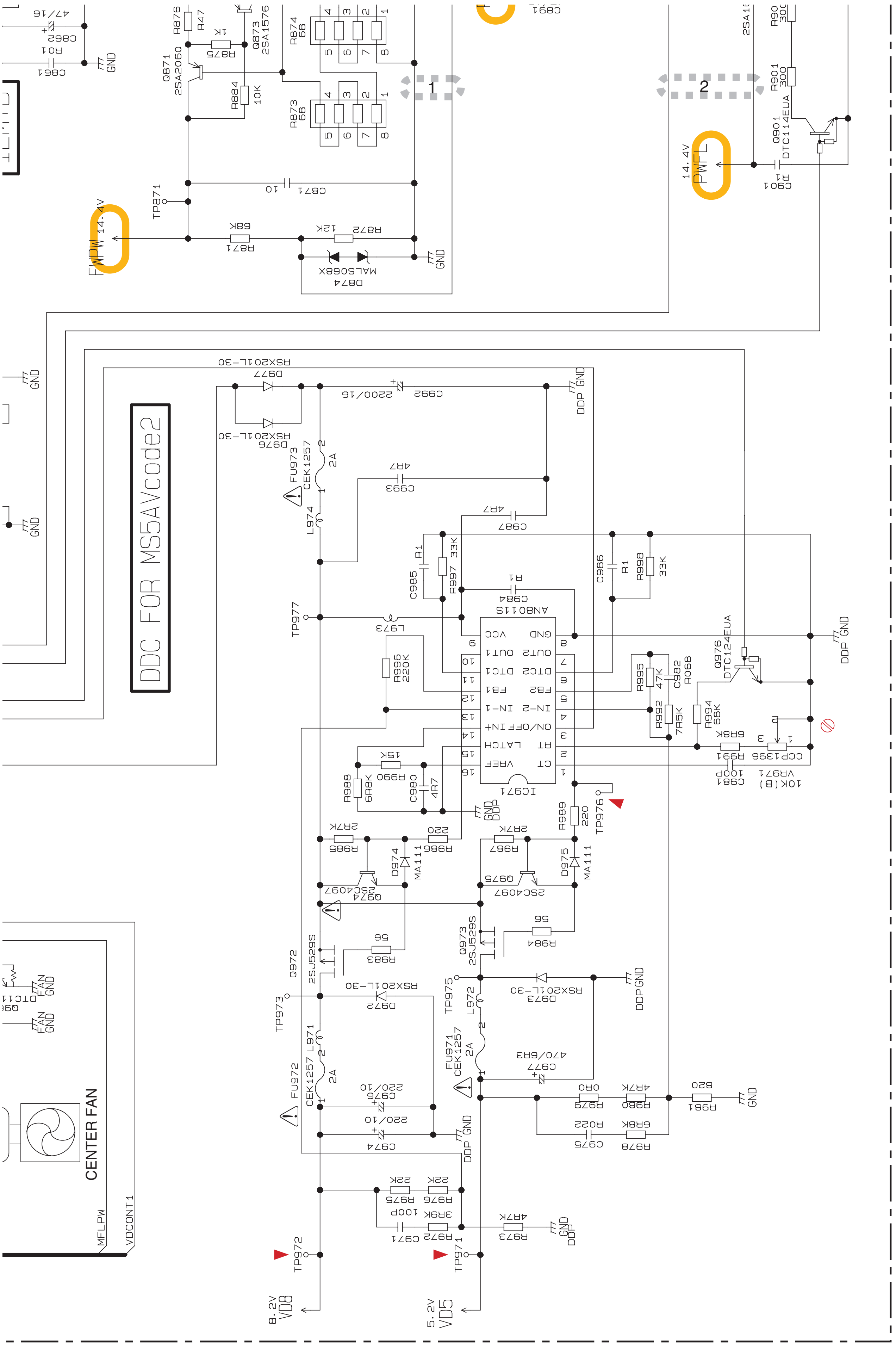
A-b 2/2

A-b
A-a


VDD33 3.3V
TP841
IC841
S-812C33AUA-C2N
Vout
Vin
GND
Q841
2SB1184F5
R841 390
C845
C844 R01
C843 R01
C842 100/10
C841 R01
VDD5
IC852
BA00CC0WFP
CTL
VCC
GND
VOUT
C
C859 1
R853 15K
R852 2R2K
R854 10K
R855 0R0
C858 R01
C857 100/6R3
R856 1K
R857 100K
R858 18K
Q853
UMF23N
C860 R1
TP853
5.0V
SWVDD5
3.3V
SWVDD33
TP851
ILM+B 9.2V
ILM+B
TP861
C862 47/16
C861 R01
FLPW 14.4V
SWVDD
SENS33V
3.3V
TP911
R911 100K
R912 10K
Q911
UMF23N
C911 R1
SENS5V
VDD5
5.0V
TP921
R921 10K
R922 10K
Q921
UMF23N
C921 R1
OPT5
SWVDD5
5.0V
TP931
R931 100K
R932 22K
Q931
UMF23N
C931 R1
C932 R1
ACC33V
3.3V
TP941
R941 100K
R942 22K
Q941
UMF23N
C941 R1
C942 R1
GND
SENS5
VDCONT1
HSEN
ACCPW1
MFLPW
DDCCTL
VDCONT1
REAR FAN6V
8.6V
Q951
2SD1760F5
FU951
630mA
CEK1252
R951 270
R952 270
R954 270
R955 10K
R956 10K
Q954
UMF5N
D951 HZU9R1(B2)
D952 HZU6R8(B3)
D953 HZU8R2(B2)
Q952 DTC114EUA
Q953 DTC114EUA
R953 0R0
C951 R01
C952 10/16
C953 R01
CN951
TP951
TP952
TP953
REAR FAN
FAN GND
COOLCNT1
COOLCNT2
VPW
CENTER FAN6V
7.0V
Q961
2SD1760F5
FU961
630mA
CEK1252
R961 0R0
R963 0R0
R964 270
R965 270
R966 270
R967 10K
R968 10K
Q963
UMF5N
D961 HZU7R5(B2)
D962 HZU6R8(B3)
Q962 DTC114EUA
C961 R01
C962 10/16
C963 R01
CN961
TP962
TP963
CENTER FAN
FAN GND
MFLPW
VDCONT1

A-a 2/2

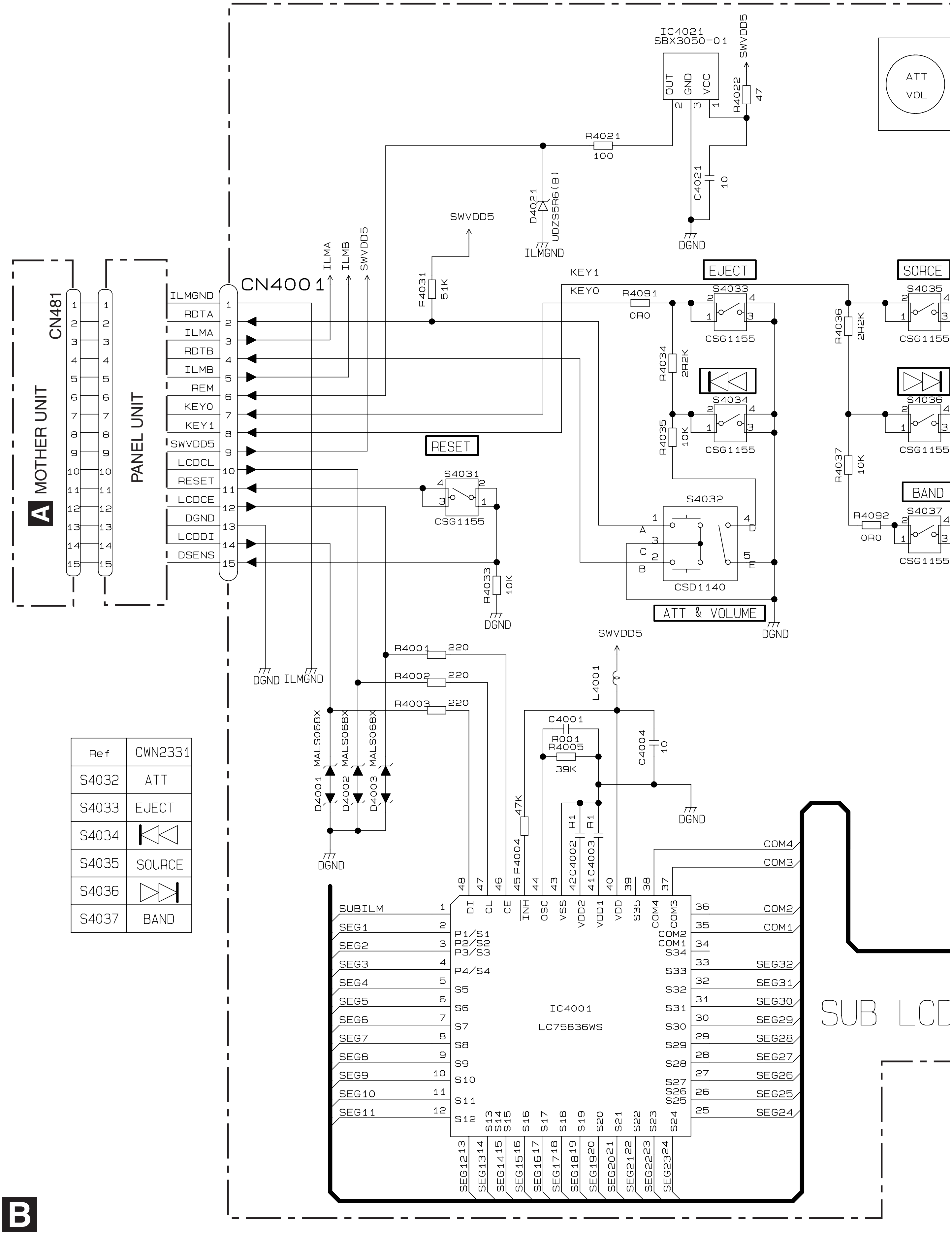
A-b 2/2


DDC FOR MS5AVcode2
CENTER FAN
FWPW 14.4V
PWFL 14.4V
8.2V VD8
5.2V VD5
IC971 AN8011S
VCC GND OUT1 OUT2 DTC1 DTC2 FB1 FB2 IN-1 IN-2 +IN ON/OFF LATCH RT VREF CT
Q871 2SA2050
Q873 2SA1576
Q901 DTC114EUA
Q976 DTC124EUA
Q972 2SJ529S
Q973 2SJ529S
Q974 2SC4097
Q975 2SC4097
D874 MAL5068X
D972 RSX201L-30
D973 RSX201L-30
D976 RSX201L-30
D977 RSX201L-30
D974 MA111
D975 MA111
FU971 CEK1257 2A
FU972 CEK1257 2A
FU973 CEK1257 2A
L971 L972 L973 L974
C992 2200/16
C993 4R7
C987 4R7
C984 R1
C985 R1
C986 R1
C982 R068
C981 100P
C980 4R7
C976 220/10
C974 220/10
C977 470/6R3
C975 R022
C971 100P
C871 10
C901 R010
C861 R010
C862 47/16
R997 33K
R998 33K
R995 47K
R992 7R5K
R994 68K
R991 6R8K
VR971 10K(B) CCP1396
R996 220K
R990 15K
R988 6R8K
R989 220
R985 2R7K
R986 220
R987 2R7K
R983 56
R984 56
R979 0R0
R980 4R7K
R981 820
R978 6R8K
R975 22K
R976 22K
R972 3R9K
R973 4R7K
R871 68K
R872 12K
R873 68
R874 68
R875 1K
R876 R47
R884 10K
R901 300
TP871 TP971 TP972 TP973 TP975 TP976 TP977
GND
DDP GND
FAN GND
MFLPW
VDCONT1
1
2

A-a 2/2

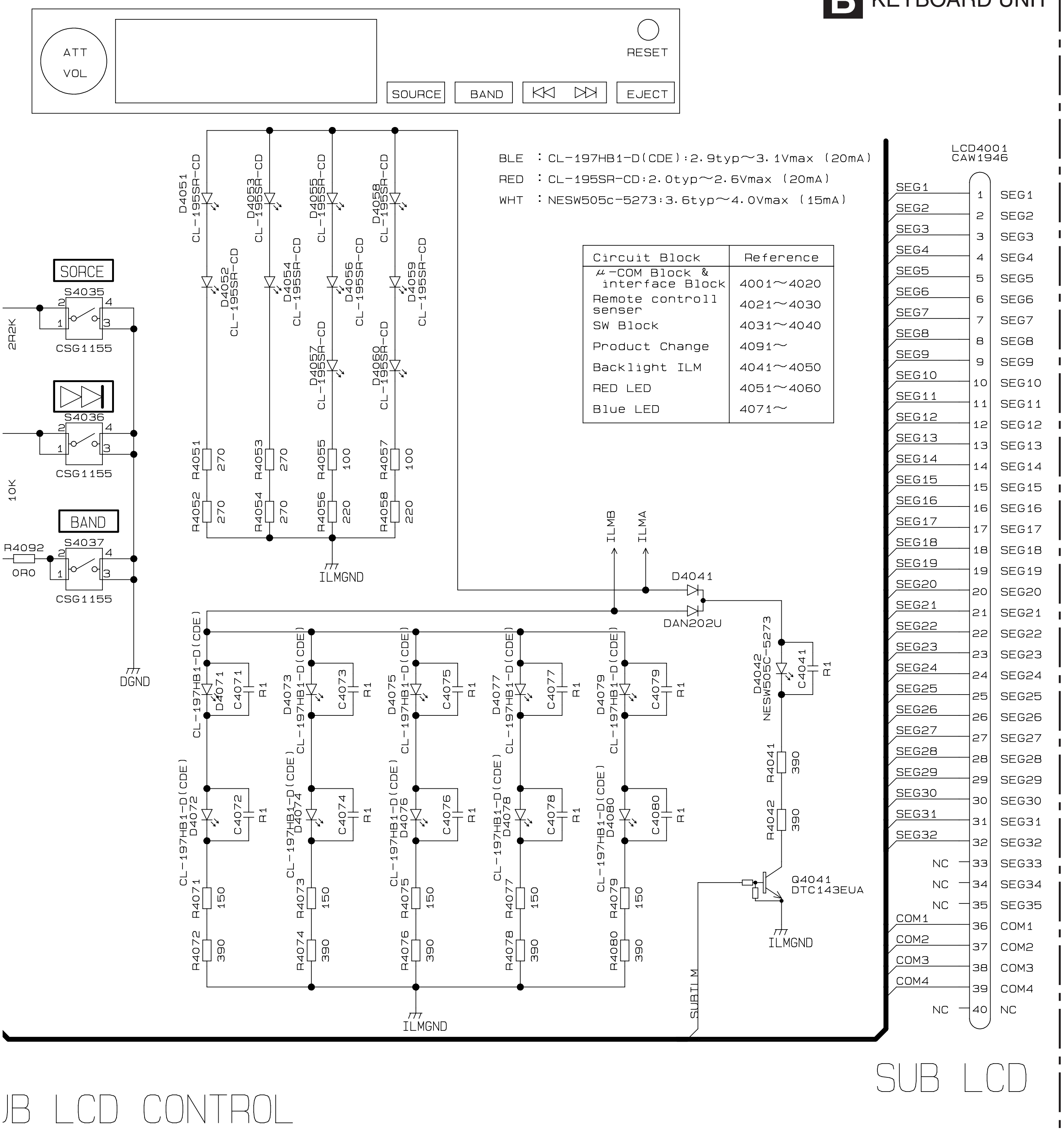
A-b
A-a

10.3 KEYBOARD UNIT


A MOTHER UNIT
CN481
PANEL UNIT
CN4001
ILMGND
RDTA
ILMA
RDTB
ILMB
REM
KEY0
KEY1
SWVDD5
LCDCL
RESET
LCDCE
DGND
LCDDI
DSENS
IC4021
SBX3050-01
OUT
GND
VCC
R4021
100
R4022
47
D4021
UDZS5R6(B)
C4021
10
ILMGND
DGND
ATT
VOL
R4031
51K
EJECT
S4033
CSG1155
R4091
0R0
R4034
2R2K
S4034
R4035
10K
RESET
S4031
CSG1155
S4032
CSD1140
ATT & VOLUME
R4033
10K
SORCE
S4035
R4036
2R2K
S4036
R4037
10K
BAND
S4037
R4092
0R0
R4001
220
R4002
220
R4003
220
D4001
D4002
D4003
MALS068X
SWVDD5
L4001
C4001
R001
R4005
39K
C4004
10
R4004
47K
C4002
C4003
R1
IC4001
LC75836WS
DI
CL
CE
INH
OSC
VSS
VDD2
VDD1
VDD
S35
COM4
COM3
COM2
COM1
SUBILM
SEG1
SEG2
SEG3
SEG4
SEG5
SEG6
SEG7
SEG8
SEG9
SEG10
SEG11
SEG12
SEG13
SEG14
SEG15
SEG16
SEG17
SEG18
SEG19
SEG20
SEG21
SEG22
SEG23
SEG24
SEG25
SEG26
SEG27
SEG28
SEG29
SEG30
SEG31
SEG32
SUB LCD
B

Ref	CWN2331
S4032	ATT
S4033	EJECT
S4034	⏮
S4035	SOURCE
S4036	⏭
S4037	BAND

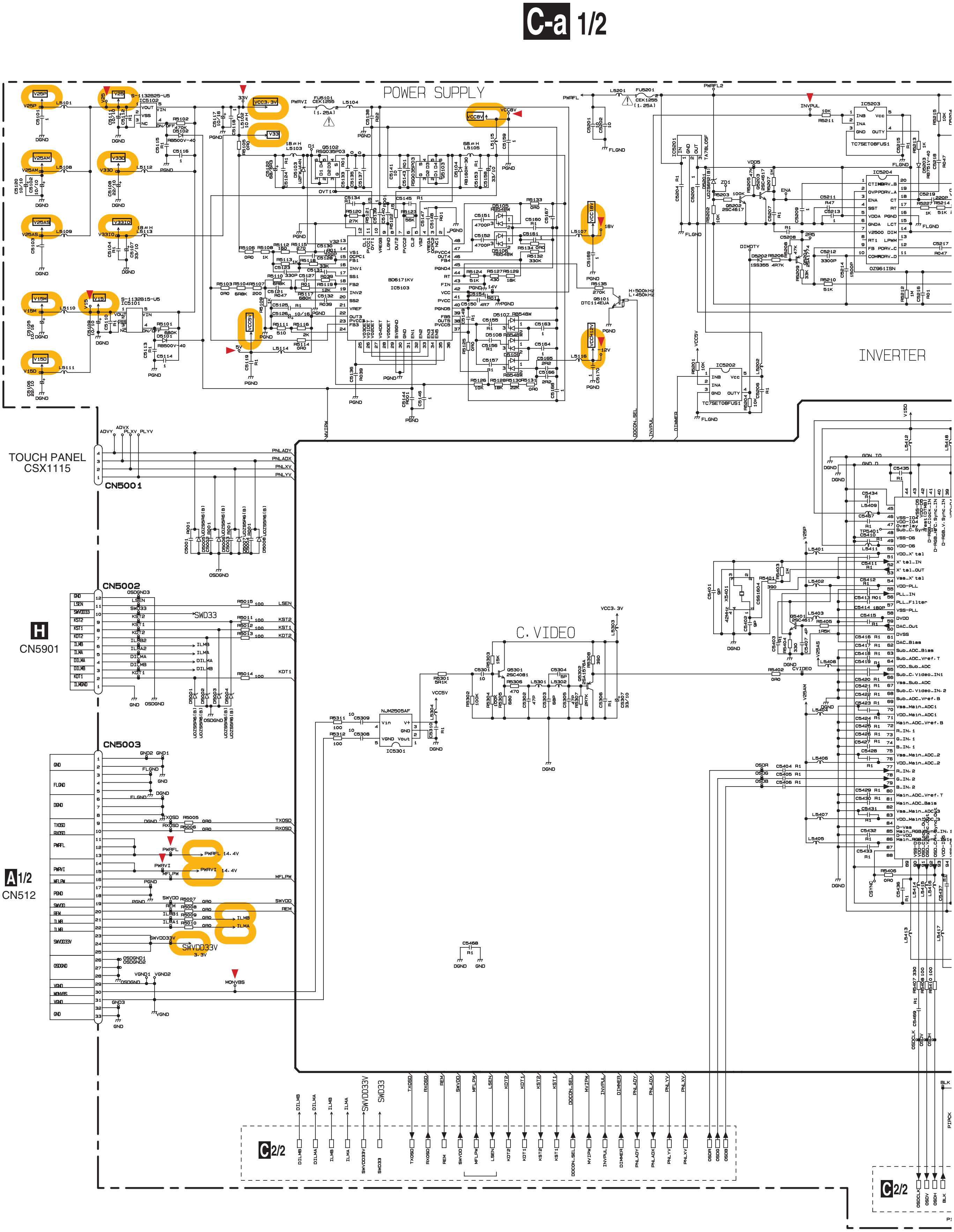
B KEYBOARD UNIT


ATT
VOL
RESET
SOURCE
BAND
EJECT
SORCE
S4035
CSG1155
S4036
S4037
R4092
0R0
2R2K
10K
DGND
D4051 CL-195SR-CD
D4052 CL-195SR-CD
D4053 CL-195SR-CD
D4054 CL-195SR-CD
D4055 CL-195SR-CD
D4056 CL-195SR-CD
D4057 CL-195SR-CD
D4058 CL-195SR-CD
D4059 CL-195SR-CD
D4060 CL-195SR-CD
R4051 270
R4052 270
R4053 270
R4054 270
R4055 100
R4056 220
R4057 100
R4058 220
ILMGND
ILMB
ILMA
D4041
DAN202U
D4042 NESW505C-5273
C4041 R1
R4041 390
R4042 390
Q4041 DTC143EUA
SUBILM
D4071 CL-197HB1-D(CDE)
D4072 CL-197HB1-D(CDE)
D4073 CL-197HB1-D(CDE)
D4074 CL-197HB1-D(CDE)
D4075 CL-197HB1-D(CDE)
D4076 CL-197HB1-D(CDE)
D4077 CL-197HB1-D(CDE)
D4078 CL-197HB1-D(CDE)
D4079 CL-197HB1-D(CDE)
D4080 CL-197HB1-D(CDE)
C4071 R1
C4072 R1
C4073 R1
C4074 R1
C4075 R1
C4076 R1
C4077 R1
C4078 R1
C4079 R1
C4080 R1
R4071 150
R4072 390
R4073 150
R4074 390
R4075 150
R4076 390
R4077 150
R4078 390
R4079 150
R4080 390
LCD4001
CAW1946
SEG1 … SEG32
NC
COM1
COM2
COM3
COM4
1 SEG1
2 SEG2
3 SEG3
4 SEG4
5 SEG5
6 SEG6
7 SEG7
8 SEG8
9 SEG9
10 SEG10
11 SEG11
12 SEG12
13 SEG13
14 SEG14
15 SEG15
16 SEG16
17 SEG17
18 SEG18
19 SEG19
20 SEG20
21 SEG21
22 SEG22
23 SEG23
24 SEG24
25 SEG25
26 SEG26
27 SEG27
28 SEG28
29 SEG29
30 SEG30
31 SEG31
32 SEG32
33 SEG33
34 SEG34
35 SEG35
36 COM1
37 COM2
38 COM3
39 COM4
40 NC
SUB LCD
JB LCD CONTROL

BLE : CL-197HB1-D(CDE):2.9typ～3.1Vmax (20mA)
RED : CL-195SR-CD:2.0typ～2.6Vmax (20mA)
WHT : NESW505c-5273:3.6typ～4.0Vmax (15mA)

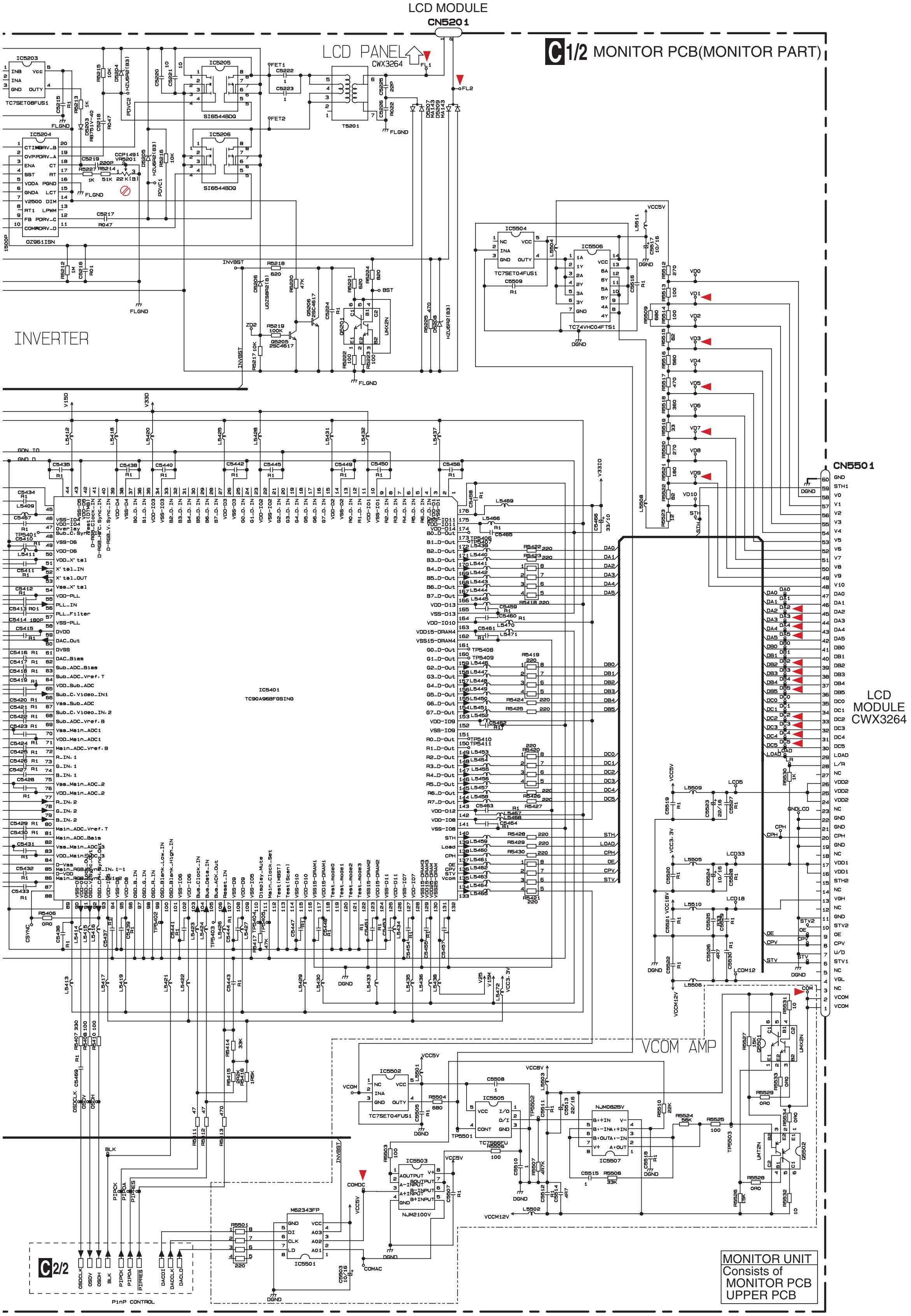
Circuit Block	Reference
μ-COM Block & interface Block	4001～4020
Remote controll senser	4021～4030
SW Block	4031～4040
Product Change	4091～
Backlight ILM	4041～4050
RED LED	4051～4060
Blue LED	4071～

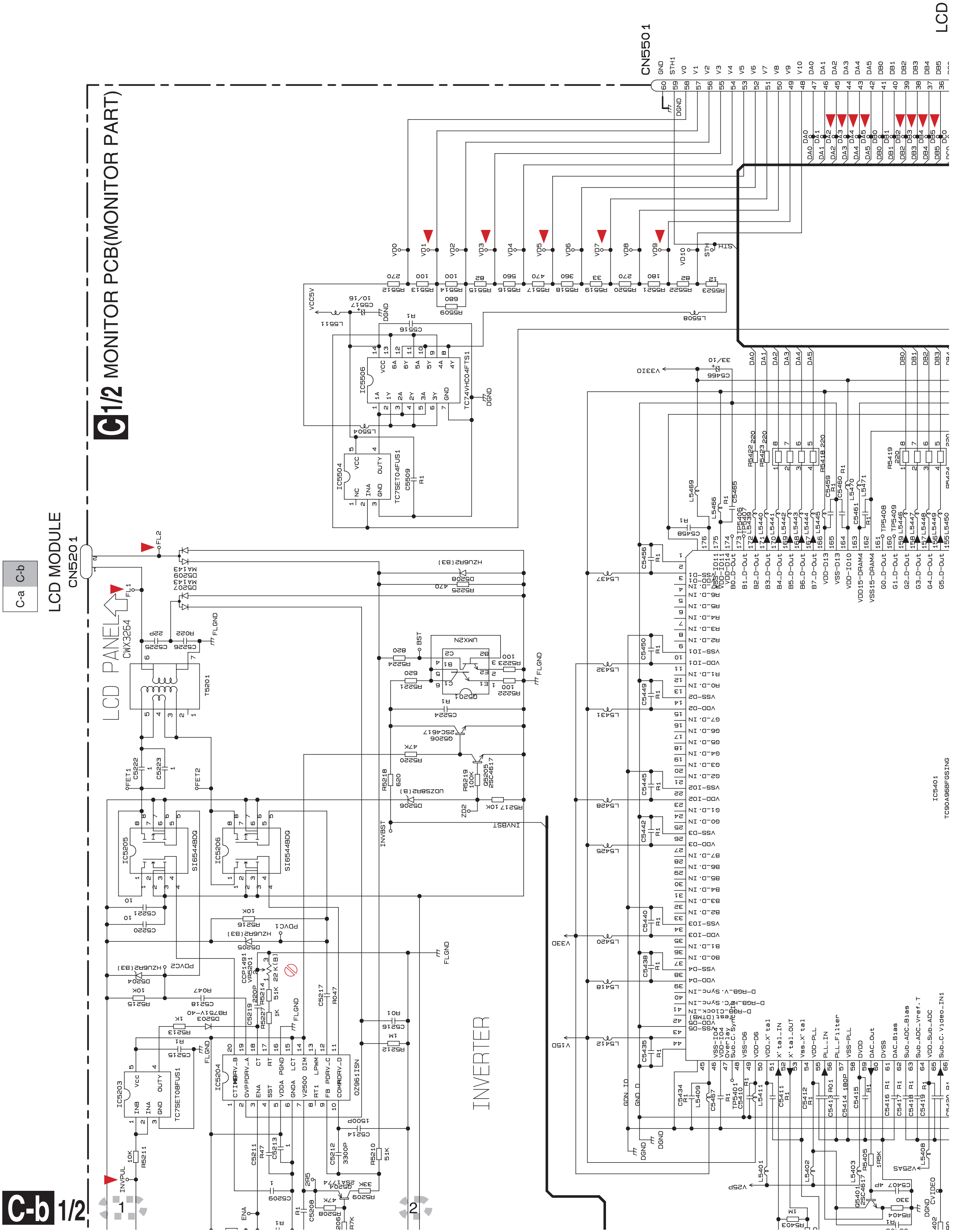
10.4 MONITOR PCB(MONITOR PART)(GUIDE PAGE)

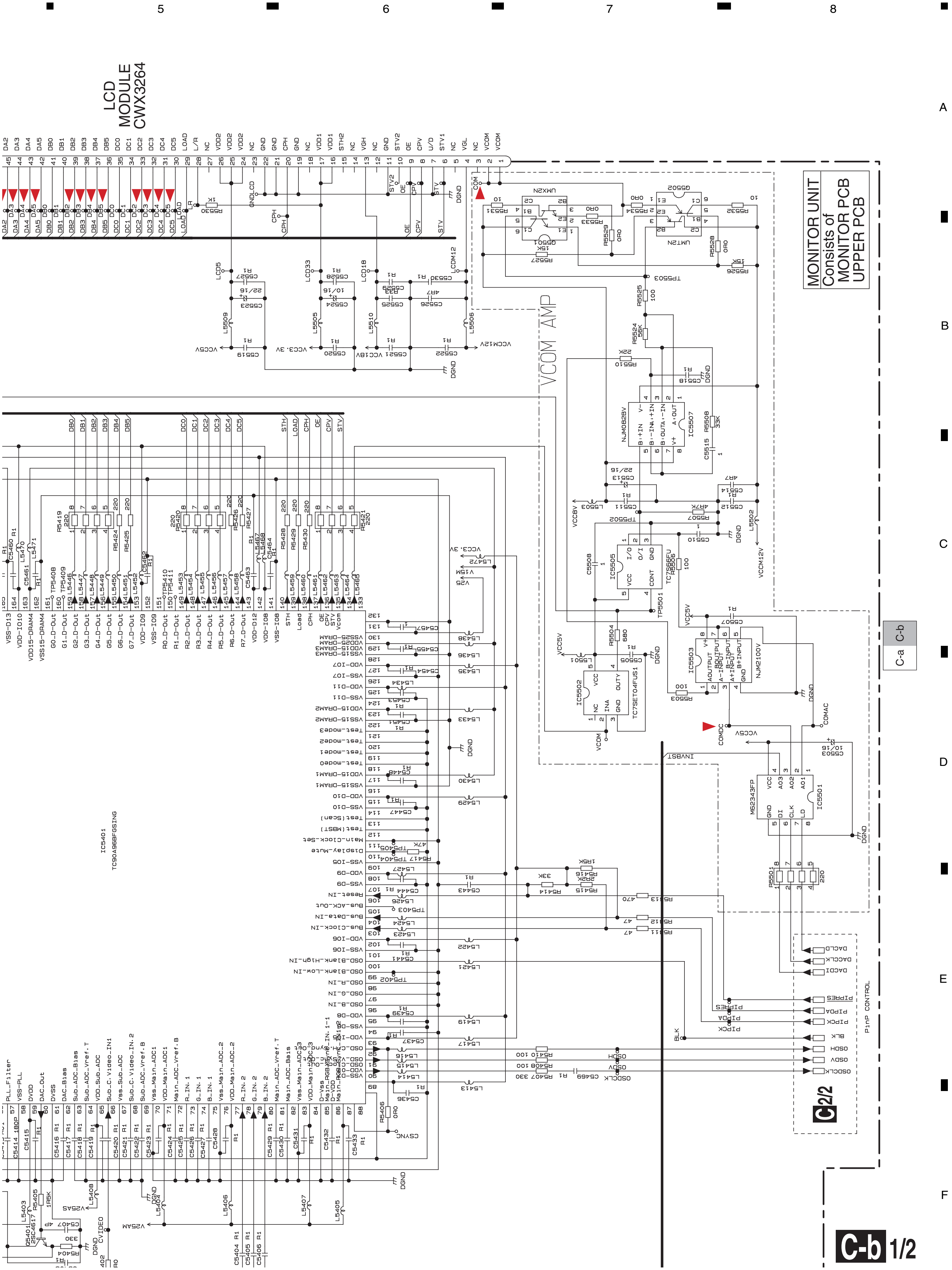

C-a 1/2
POWER SUPPLY
INVERTER
C.VIDEO
TOUCH PANEL
CSX1115
CN5001
CN5002
H
CN5901
CN5003
A 1/2
CN512
C 2/2
C 2/2
BD6171KV
IC5103
S-1132B25-U5
IC5102
S-1132B15-U5
IC5101
IC5203
TC7SET08FUS1
IC5204
OZ961ISN
IC5202
TC7SET08FUS1
NJM2505AF
IC5301
Q5101
DTC114EUA
Q5202
2SC4617
Q5301
2SC4081
Q5401
2SC4617
FU5101
CEK1255
(1.25A)
FU5201
CEK1255
(1.25A)
V25P
V25AM
V25AS
V15M
V15D
V25
V33D
V33IO
V15
VCC3.3V
V33
VCC8V
VCC18V
VCC5V
VCC-12V
18V
-12V
33V
5V
PWRVI
PWRFL
PWRFL2
INVPUL
DIMMER
DOCON_SEL
MVIPW
SWD33
SWVDD33V
3.3V
PWRFL 14.4V
PWRVI 14.4V
MONVBS
H:500kHz
L:450kHz
CVIDEO
DGND
PGND
FLGND
OSDGND
VGND
GND
DILMB
DILMA
ILMB
ILMA
TXOSD
RXOSD
REM
SWVDD
MFLPW
LSEN
KDT2
KDT1
KST2
KST1
PNLADY
PNLADX
PNLYV
PNLXV
OSDR
OSDG
OSDB
OSDCLK
BLK
1
2
3
4
A
B
C
D
E
F

C 1/2

C-b 1/2


LCD MODULE
CN5201
C 1/2 MONITOR PCB(MONITOR PART)
LCD PANEL
CWX3264
FL1
FL2
IC5203
TC7SET08FU51
IC5204
OZ961ISN
IC5205
SI6544BDQ
IC5206
SI6544BDQ
T5201
FLGND
INVERTER
INVBST
BST
IC5504
TC7SET04FU51
IC5506
TC74VHC04FTB1
VCC5V
DGND
IC5401
TC90A96BFGSING
CN5501
LCD MODULE
CWX3264
VCOM AMP
IC5502
TC7SET04FU51
IC5505
TC7S66FU
IC5507
NJM082BV
IC5503
NJM2100V
IC5501
M62343FP
VCCM12V
C 2/2
PinP CONTROL
OSDCLK
OSDV
OSDH
BLK
PIPCK
PIPDA
PIPRES
DACDI
DACCLK
DACLD
COMDC
COMAC
MONITOR UNIT
Consists of
MONITOR PCB
UPPER PCB


C 1/2 MONITOR PCB(MONITOR PART)
LCD MODULE
CN5201
CN5501
LCD
LCD PANEL
CWX3264
INVERTER
C-a
C-b
C-b 1/2
IC5506
TC74VHC04FTS1
IC5504
TC7SET04FUS1
IC5203
TC7SET08FUS1
IC5204
OZ9611SN
IC5205
IC5206
SI6544BDQ
T5201
IC5401
TC90A96BFGSING
VR5201
CCP1491
22K(B)
FL1
FL2
FET1
FET2
INVPUL
INVBST
PDVC1
PDVC2
BST
FLGND
DGND
V33D
V15D
V25P
V25AS
V33IO
VCC5V
UMX2N
2SC4617
2SA1774
HZU6R2(B3)
UDZS8R2(B)
MA143
RB751V-40
D-RGB-V.Sync-IN
D-RGB-H.Sync-IN
D-RGB-Clock-IN
CVIDEO
VD0
VD1
VD2
VD3
VD4
VD5
VD6
VD7
VD8
VD9
VD10
STH1


LCD MODULE CWX3264
MONITOR UNIT
Consists of
MONITOR PCB
UPPER PCB
VCOM AMP
IC5401
TC90A96BFGSING
IC5501
M62343FP
IC5502
TC7SET04FUS1
IC5503
NJM2100V
IC5505
TC7S66FU
IC5507
NJM082BV
Q5501
UMX2N
Q5502
UMT2N
Q5401
2SC4617
PinP CONTROL
C2/2
C-a
C-b
C-b 1/2
VCC5V
VCC3.3V
VCC18V
VCCM12V
VCC8V
V25M
V25AS
V15M
DGND
COMDC
COMAC
INVBST
OSDCLK
OSDV
OSDH
BLK
PIPCK
PIPDA
PIPRES
DACDI
DACCLK
DACLD
CSYNC
CVIDEO
5
6
7
8
A
B
C
D
E
F

A

C-b 1/2

B

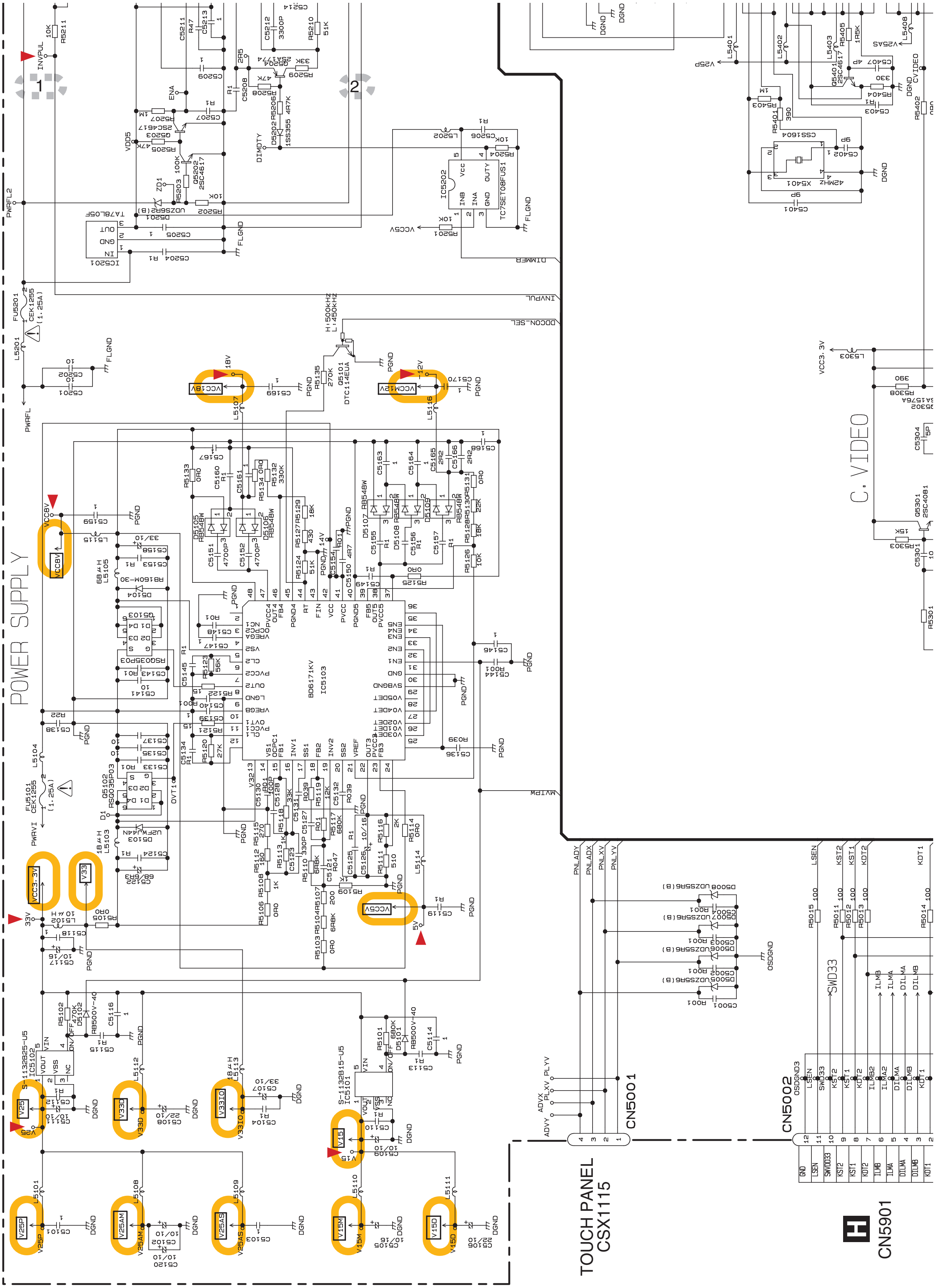
C

C-a C-b

D

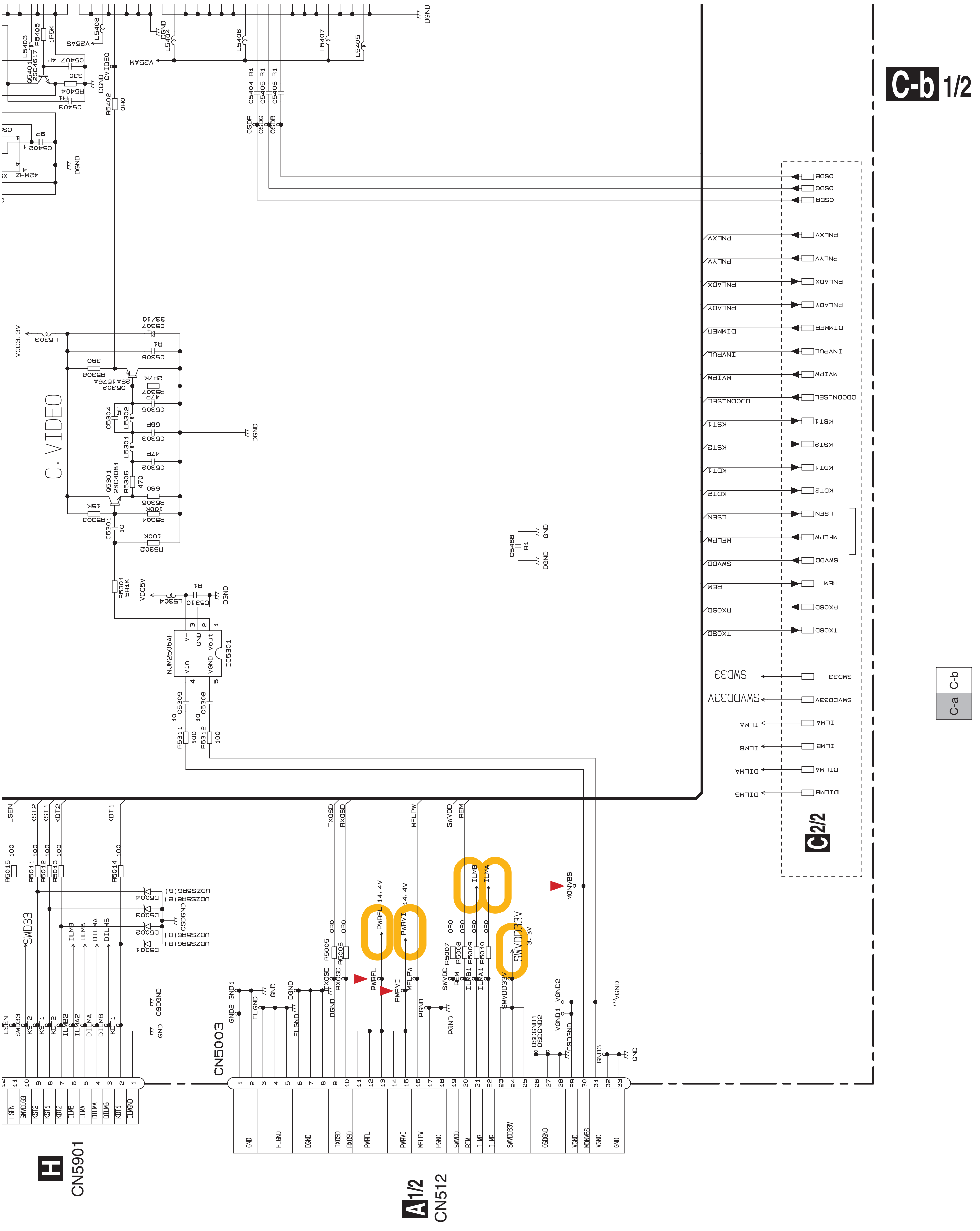
E

F


POWER SUPPLY
C. VIDEO
TOUCH PANEL
CSX1115
CN5001
CN5002
H
CN5901
IC5103
BD6171KV
IC5201
TA78L05F
IC5202
TC7SET08FUS1
IC5101
S-1132B15-U5
IC5102
S-1132B25-U5
FU5201
CEK1255
(1.25A)
FU5101
CEK1255
(1.25A)
X5401
42MHz
PWRFL
PWRVI
INVPUL
DIMMER
DDCON-SEL
MVIPW
VCC18V
VCC12V
VCC8V
VCC3.3V
V33
VCC5V
V25
V33D
V33IO
V15
V25P
V25AM
V25AS
V15M
V15D
V25P
V25AS
VCC3.3V
18V
12V
33V
5V
OSDGND
PGND
DGND
FLGND

C-a 1/2

C-b 1/2

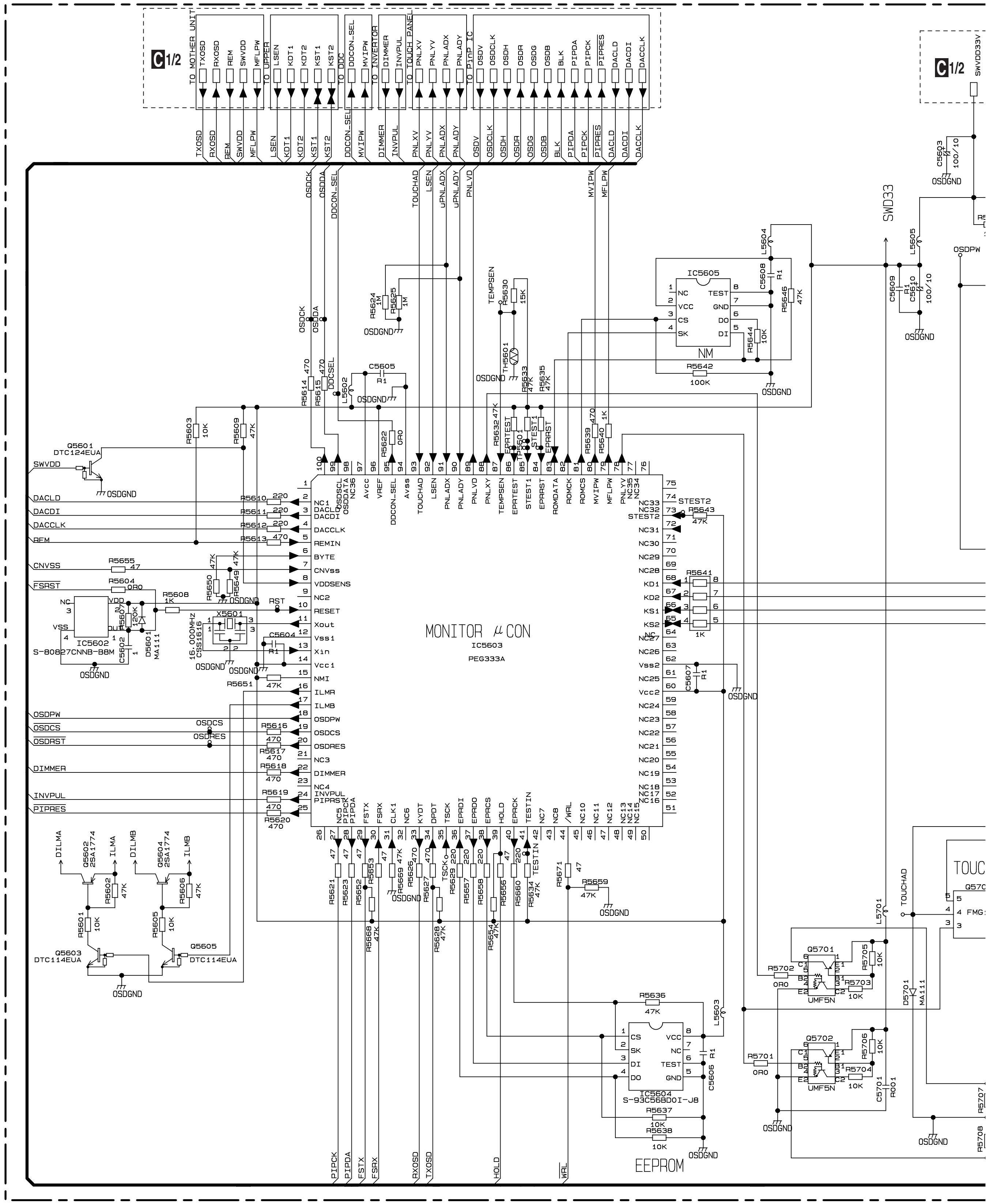

C. VIDEO
IC5301
NJM2505AF
Vin
VGND
V+
GND
Vout
VCC3.3V
VCC5V
V25AS
V25AM
DGND
C.VIDEO
Q5401 2SC4617
Q5301 2SC4081
Q5302 2SA1576A
OSDR
OSDG
OSDB
PNL_XV
PNL_YV
PNL_ADX
PNL_ADY
DIMMER
INVPUL
MVIPW
DDCON_SEL
KST1
KST2
KDT1
KDT2
LSEN
MFLPW
SWVDD
REM
RXOSD
TXOSD
SWD33
SWVDD33V
ILMA
ILMB
DILMA
DILMB
C 2/2
C-b
C-a
MONVBS
PWRFL 14.4V
PWRVI 14.4V
SWVDD33V 3.3V
UDZS5R6(B)
D5501
D5502
D5503
D5504
OSDGND
FLGND
PGND
VGND
GND
CN5003
H
CN5901
A 1/2
CN512
LSEN
SWVDD33
KST2
KST1
KDT2
ILMB
ILMA
DILMA
DILMB
KDT1
ILMGND
GND
FLGND
DGND
TXOSD
RXOSD
PWRFL
PWRVI
MFLPW
PGND
SWVDD
REM
ILMB
ILMA
SWVDD33V
OSDGND
VGND
MONVBS
VGND
GND

A
B
C
D
E
F

C-a 1/2

10.5 MONITOR PCB(OSD & µCON PART)(GUIDE PAGE)

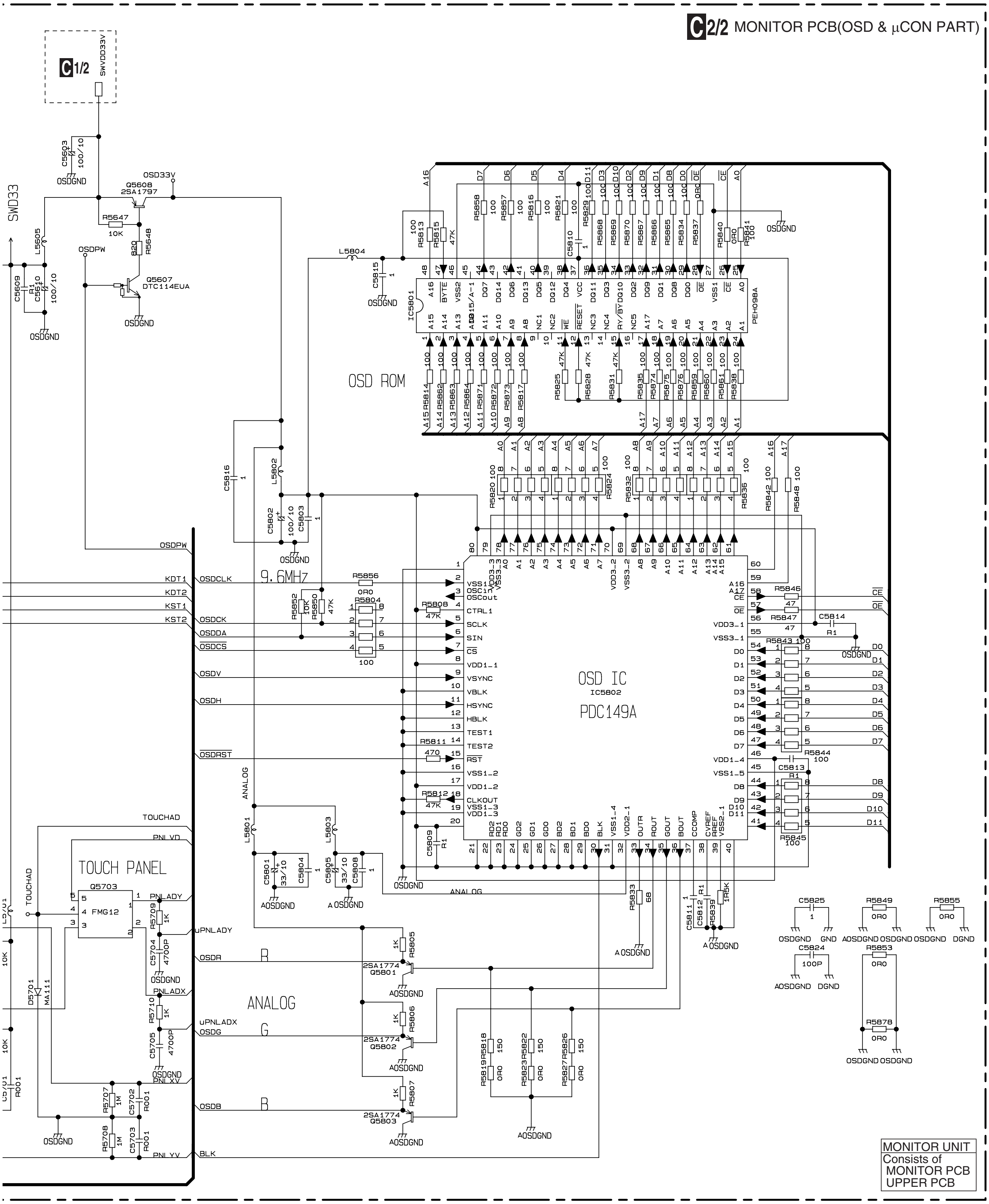
C-a 2/2


C 1/2
TO MOTHER UNIT
TXOSD
RXOSD
REM
SWVDD
MFLPW
TO UPPER
LSEN
KDT1
KDT2
KST1
KST2
TO DDC
DDCON_SEL
MVIPW
TO INVERTOR
DIMMER
INVPUL
TO TOUCH PANEL
PNLXV
PNLYV
PNLADX
PNLADY
TO PinP IC
OSDV
OSDCLK
OSDH
OSDR
OSDG
OSDB
BLK
PIPDA
PIPCK
PIPRES
DACLD
DACDI
DACCLK
SWVDD33V
SWD33
OSDCK
OSDDA
TOUCHAD
PNLVD
TEMPSEN
TH5601
IC5605
NM
R5642 100K
OSDGND
OSDPW
Q5601 DTC124EUA
IC5602 S-80827CNNB-B8M
X5601 16.000MHz CSS1616
D5601 MA111
MONITOR µCON
IC5603
PEG333A
CNVSS
FSRST
DIMMER
INVPUL
PIPRES
OSDCS
OSDRST
DILMA
ILMA
DILMB
ILMB
Q5602 2SA1774
Q5604 2SA1774
Q5603 DTC114EUA
Q5605 DTC114EUA
IC5604
S-93C56BDOI-J8
EEPROM
R5636 47K
R5637 10K
R5638 10K
Q5701 UMF5N
Q5702 UMF5N
D5701 MA111
TOUC
FSTX
FSRX
HOLD
WRL

C 2/2

C-b 2/2

C 2/2 MONITOR PCB(OSD & µCON PART)


C 1/2
SWVDD33V
C5603 100/10
OSDGND
OSD33V
Q5608 2SA1797
R5647 10K
R5648 820
SWD33
L5605
OSDPW
Q5607 DTC114EUA
C5609 R1
C5610 100/10
L5804
C5815 1
IC5801
PEH098A
OSD ROM
R5813 100
R5815 47K
R5840 0R0
R5841 100
C5816 1
L5802
C5802 100/10
C5803 1
9.6MHz
R5856 0R0
R5852 10K
R5850 47K
R5804
R5808 47K
OSD IC
IC5802
PDC149A
R5811 470
R5812 47K
C5809 R1
R5846 47
R5847 47
C5814 R1
R5843 100
R5844 100
C5813 R1
R5845 100
OSDPW
KDT1 OSDCLK
KDT2
KST1
KST2 OSDCK
OSDDA
OSDCS
OSDV
OSDH
OSDRST
TOUCHAD
PNLVD
TOUCH PANEL
Q5703 FMG12
PNLADY
R5709 1K
uPNLADY
C5704 4700P
PNLADX
R5710 1K
uPNLADX
C5705 4700P
PNLXV
PNLYV
R5707 1M
C5702 R001
R5708 1M
C5703 R001
D5701 MA111
OSDR
OSDG
OSDB
BLK
ANALOG
L5801
L5803
C5801 33/10
C5804 1
C5805 33/10
C5808 1
R5805 1K
Q5801 2SA1774
R5806 1K
Q5802 2SA1774
R5807 1K
Q5803 2SA1774
R5818 150
R5819 0R0
R5822 150
R5823 0R0
R5826 150
R5827 0R0
R5833 68
C5811 1
C5812 R1
R5839
R5838 1R5K
C5825 1
C5824 100P
R5849 0R0
R5855 0R0
R5853 0R0
R5878 0R0
OSDGND
AOSDGND
GND
DGND
D0 D1 D2 D3 D4 D5 D6 D7 D8 D9 D10 D11
CE
OE
MONITOR UNIT
Consists of
MONITOR PCB
UPPER PCB

C 2/2

A

B

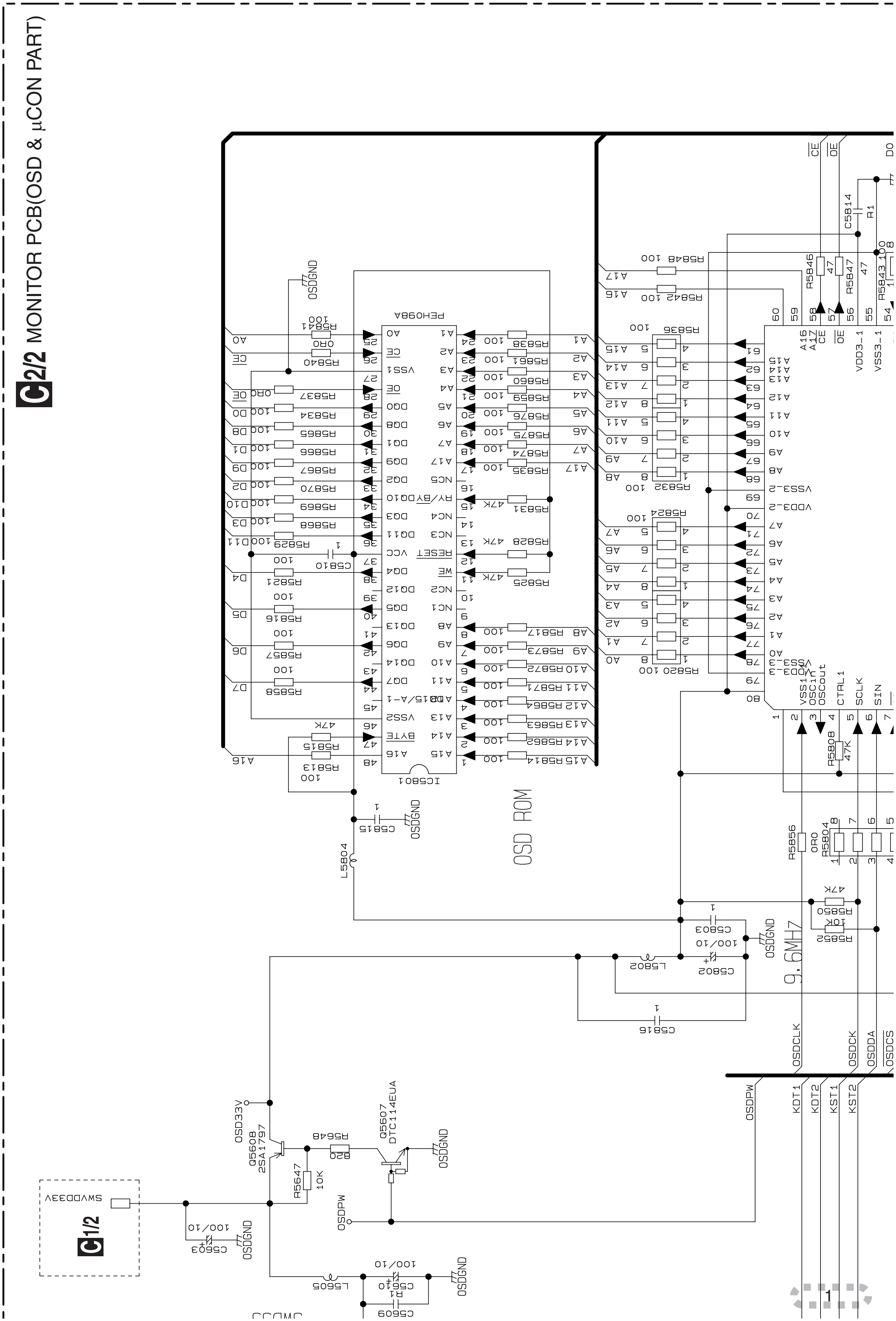
C

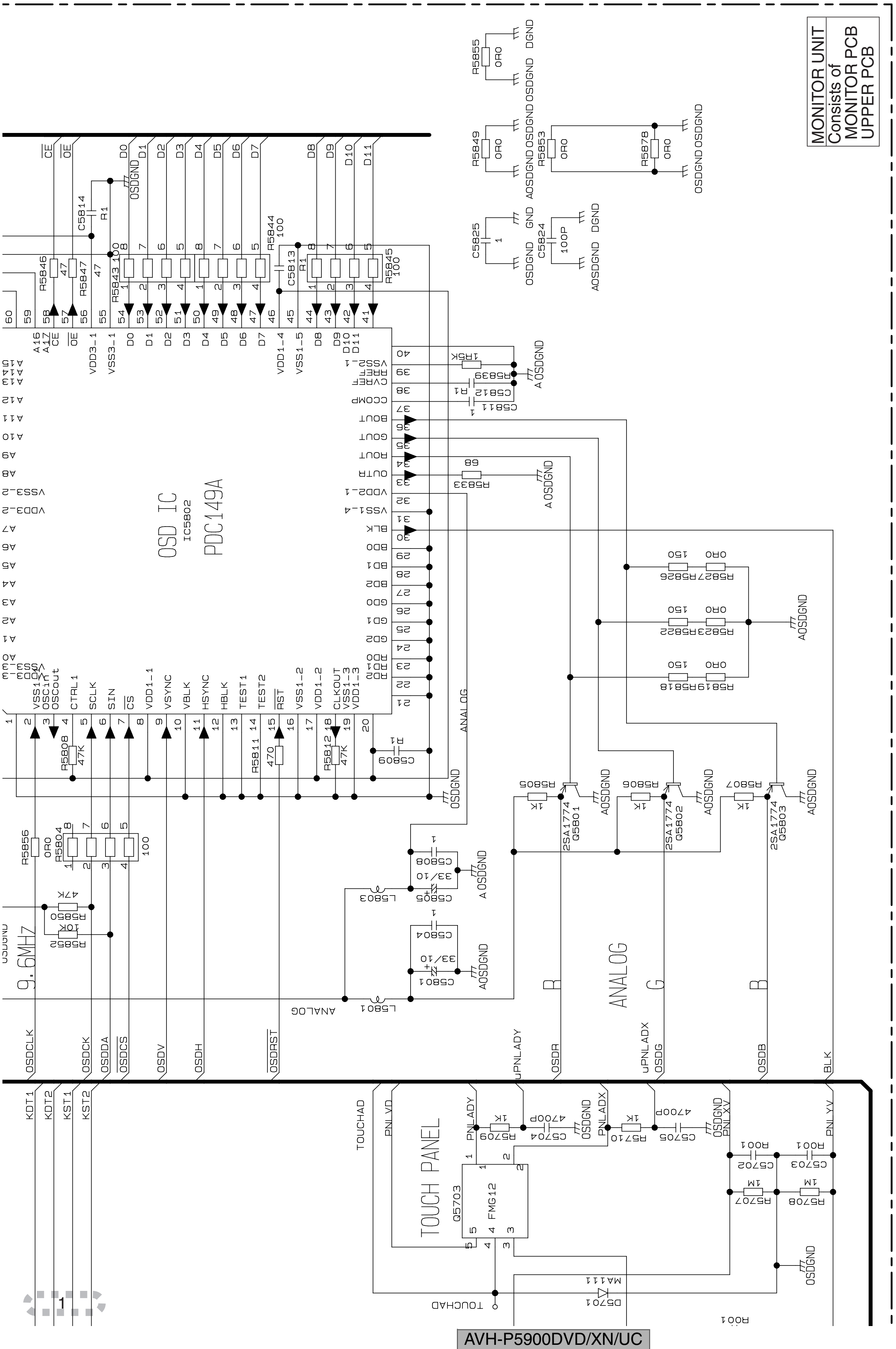
D

E

F

C 2/2 MONITOR PCB(OSD & μCON PART)


IC5801
PEH098A
OSD ROM
OSDGND
OSD33V
OSDPW
SWVDD33V
C1/2
Q5608
2SA1797
Q5607
DTC114EUA
R5647
10K
R5648
820
L5804
L5802
L5605
C5815
C5803
C5802
C5816
C5603
C5609
C5610
100/10
9.6MHz
OSDCLK
OSDCK
OSDDA
OSDCS
KDT1
KDT2
KST1
KST2
VSS1
OSCin
OSCout
CTRL1
SCLK
SIN
VDD3_1
VSS3_1
VSS3_2
VDD3_2
VSS3_3
VDD3_3
RESET
BYTE
VCC
C-a
C-b


MONITOR UNIT
Consists of
MONITOR PCB
UPPER PCB
OSD IC
IC5802
PDC149A
TOUCH PANEL
Q5703
FMG12
ANALOG
9.6MHz
2SA1774 Q5801
2SA1774 Q5802
2SA1774 Q5803
D5701 MA111
L5801
L5803
CE
OE
D0
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
D11
OSDCLK
OSDCK
OSDDA
OSDCS
OSDV
OSDH
OSDRST
uPNLADY
OSDR
uPNLADX
OSDG
OSDB
BLK
KDT1
KDT2
KST1
KST2
TOUCHAD
PNLVD
PNLADY
PNLADX
PNLXV
PNLYV
OSDGND
AOSDGND
DGND
GND

A

C-b 2/2

B

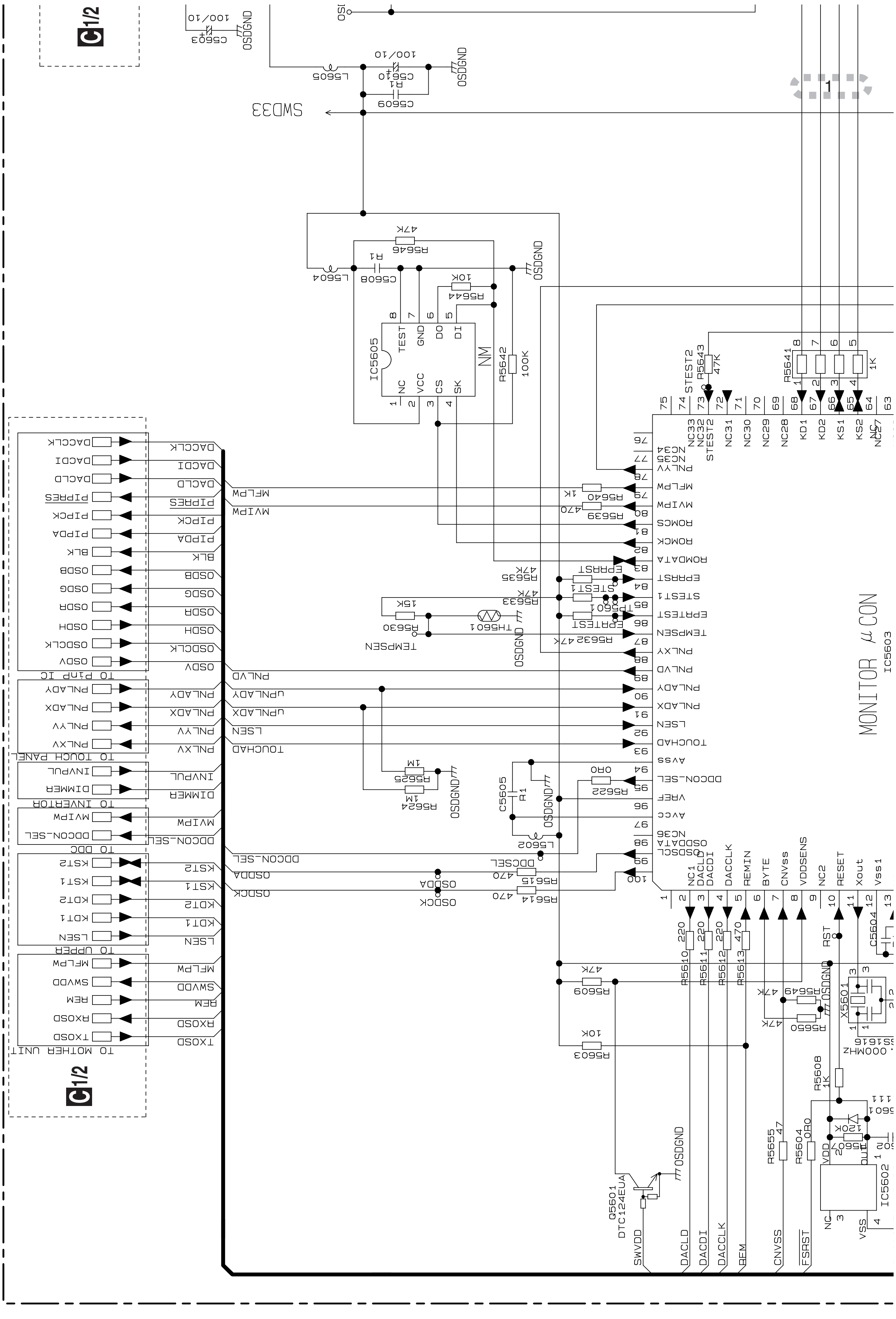
C

C-a C-b

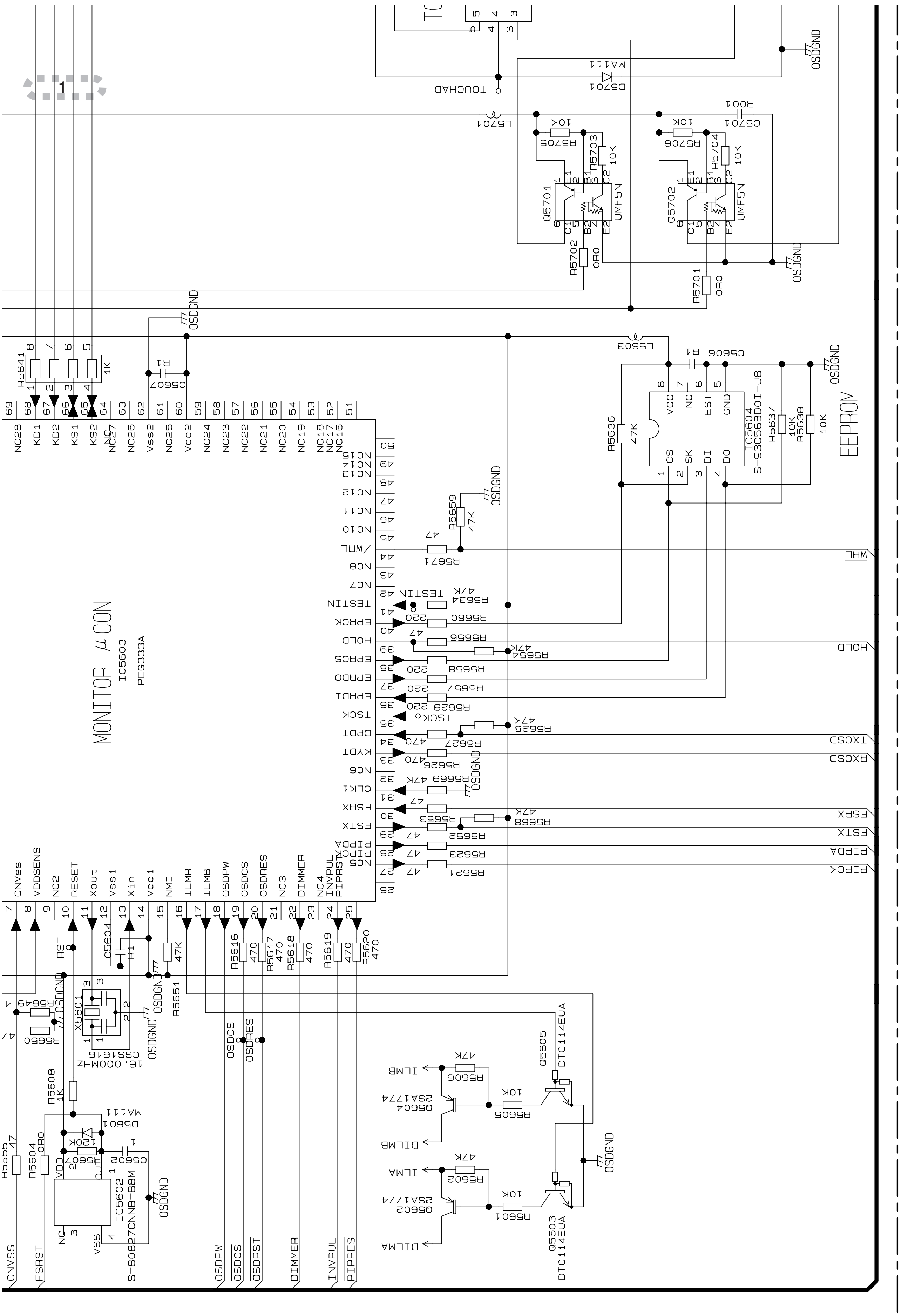
D

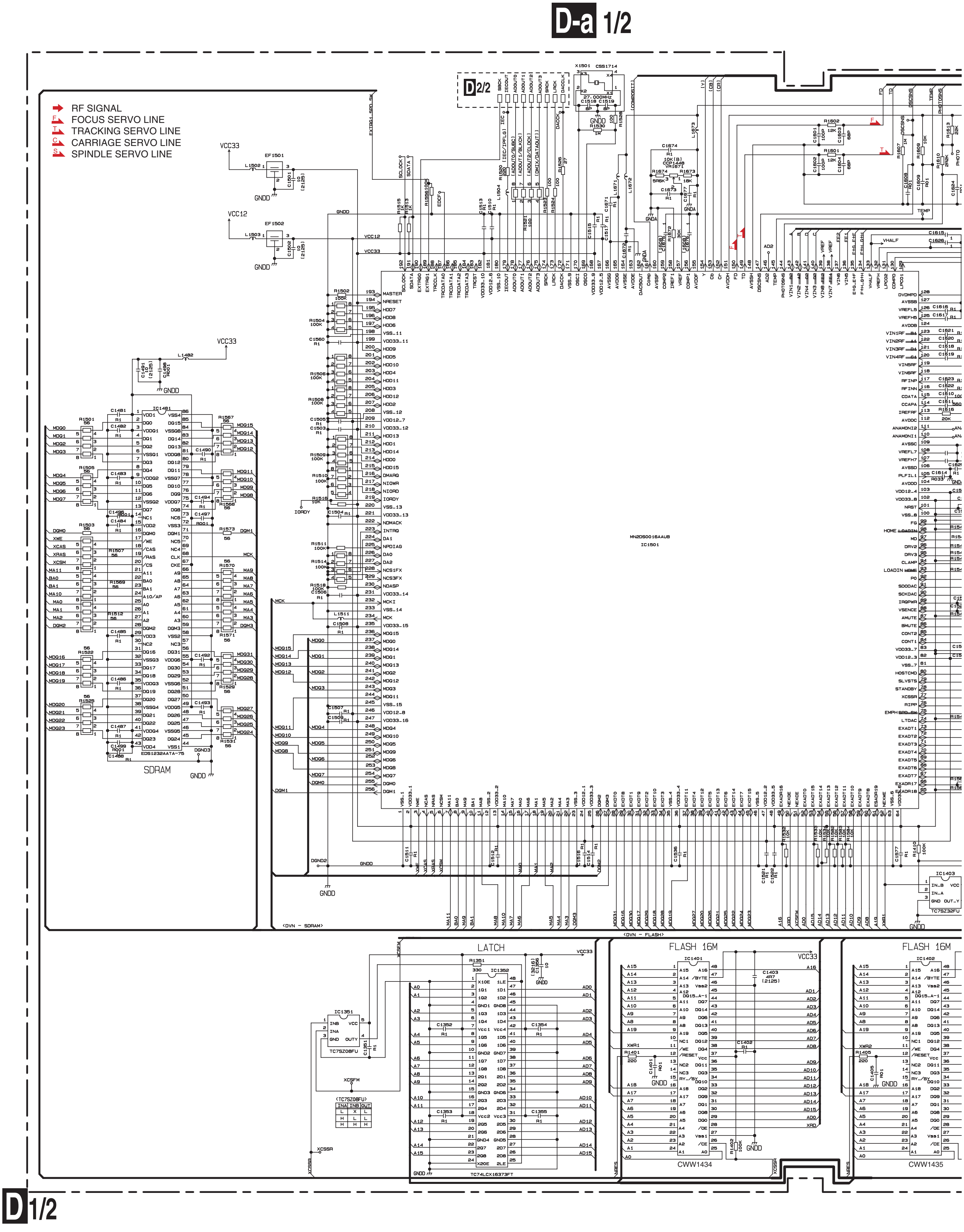
E

F


C 1/2
ISO
C5603
100/10
OSDGND
L5605
C5610
R1
100/10
C5609
SWD33
1
R5646
47K
L5604
C5608
R1
OSDGND
R5644
10K
IC5605
TEST
GND
DO
DI
NC
VCC
CS
SK
NM
R5642
100K
STEST2
R5643
47K
R5641
1K
MONITOR µCON
IC5603
NC33
NC32
STEST2
NC31
NC30
NC29
NC28
KD1
KD2
KS1
KS2
NC27
NC34
NC35
PNLYV
MFLPW
MVIPW
ROMCS
ROMCK
ROMDATA
EPRRST
STEST1
EPRTEST
TEMPSEN
PNLXY
PNLVD
PNLADY
PNLADX
LSEN
TOUCHAD
AVSS
DDCON-SEL
VREF
AVCC
NC36
OSDDATA
OSDSCL
NC1
DACLD
DACDI
DACCLK
REMIN
BYTE
CNVss
VDDSENS
NC2
RESET
Xout
Vss1
R5640
1K
R5639
470
EPRRST
R5635
47K
STEST1
R5633
47K
TP5601
EPRTEST
R5632
47K
R5630
15K
TH5601
TEMPSEN
OSDGND
R5625
1M
R5624
1M
C5605
R1
L5602
R5622
0RO
DDCSEL
R5615
470
R5614
470
OSDA
OSDCK
R5610
220
R5611
220
R5612
220
R5613
470
RST
C5604
R5609
47K
R5649
47K
R5650
47K
X5601
R5603
10K
R5608
1K
R5655
47
R5604
0RO
IC5602
VDD
OUT
NC
VSS
Q5601
DTC124EUA
SWVDD
DACLD
DACDI
DACCLK
REM
CNVSS
FSRST
DACCLK
DACDI
DACLD
PIPRES
PIPCK
PIPDA
BLK
OSDB
OSDG
OSDR
OSDH
OSDCLK
OSDV
TO PinP IC
PNLADY
PNLADX
PNLYV
PNLXV
TO TOUCH PANEL
INVPUL
DIMMER
TO INVERTOR
MVIPW
DDCON-SEL
TO DDC
KST2
KST1
KDT2
KDT1
LSEN
TO UPPER
MFLPW
SWVDD
REM
RXOSD
TXOSD
TO MOTHER UNIT
C 1/2
MFLPW
MVIPW
PNLVD
uPNLADY
uPNLADX
LSEN
TOUCHAD
DDCON-SEL
OSDDA
OSDCK

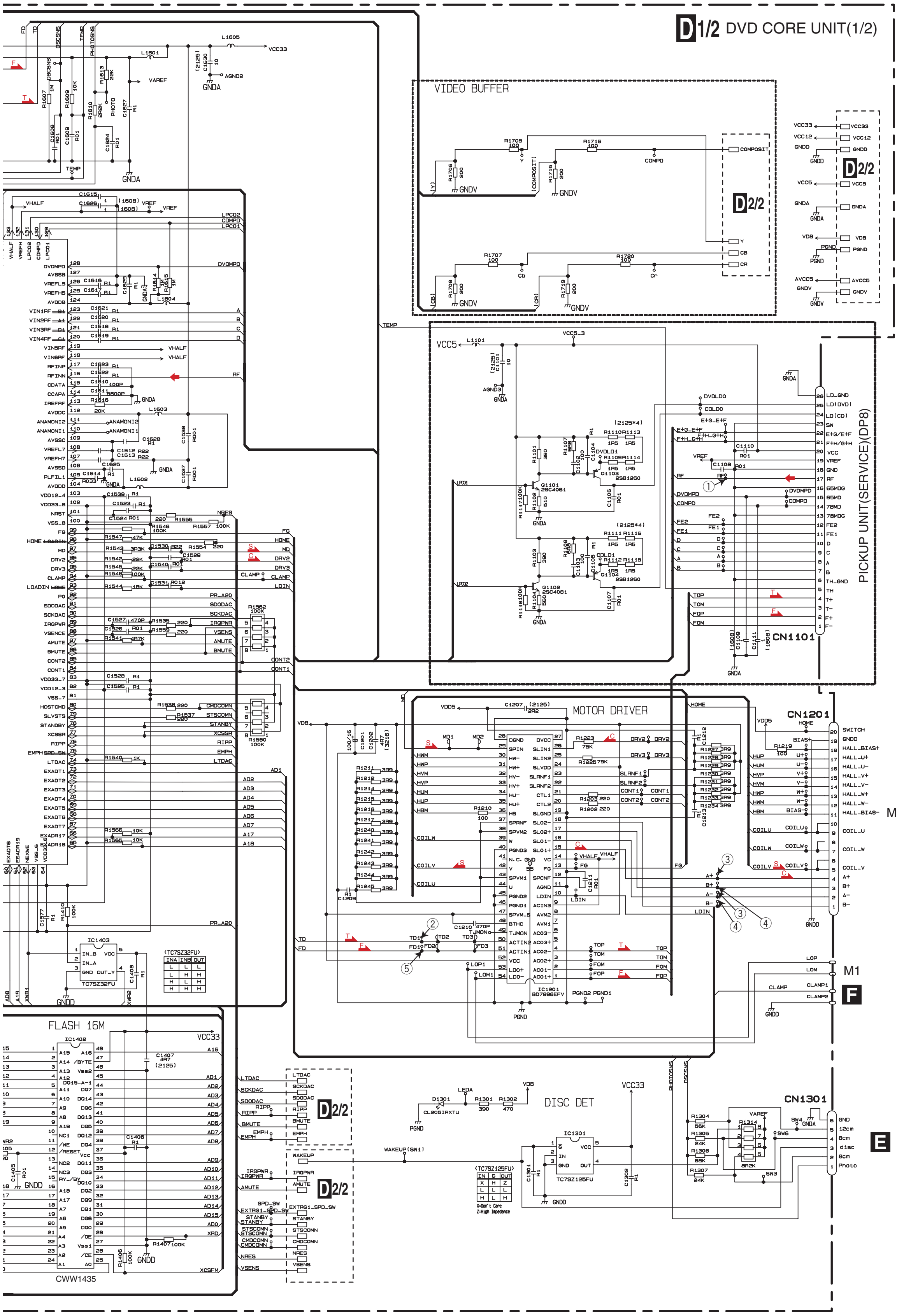
C-a 2/2


MONITOR μCON
IC5603
PEG333A
EEPROM
IC5604
S-93C56BDOI-J8
Q5701
Q5702
UMF5N
Q5603
Q5605
DTC114EUA
Q5602
Q5604
2SA1774
IC5602
S-80827CNNB-B8M
X5601
CSS1616
16.000MHZ
D5601
D5701
MA111
TOUCHAD
OSDGND
WRL
HOLD
TXOSD
RXOSD
FSRX
FSTX
PIPDA
PIPCK
CNVSS
FSRST
OSDPW
OSDCS
OSDRST
DIMMER
INVPUL
PIPRES
ILMB
ILMA
DILMB
DILMA
RST
TESTIN
TSCK
A
B
C
D
E
F

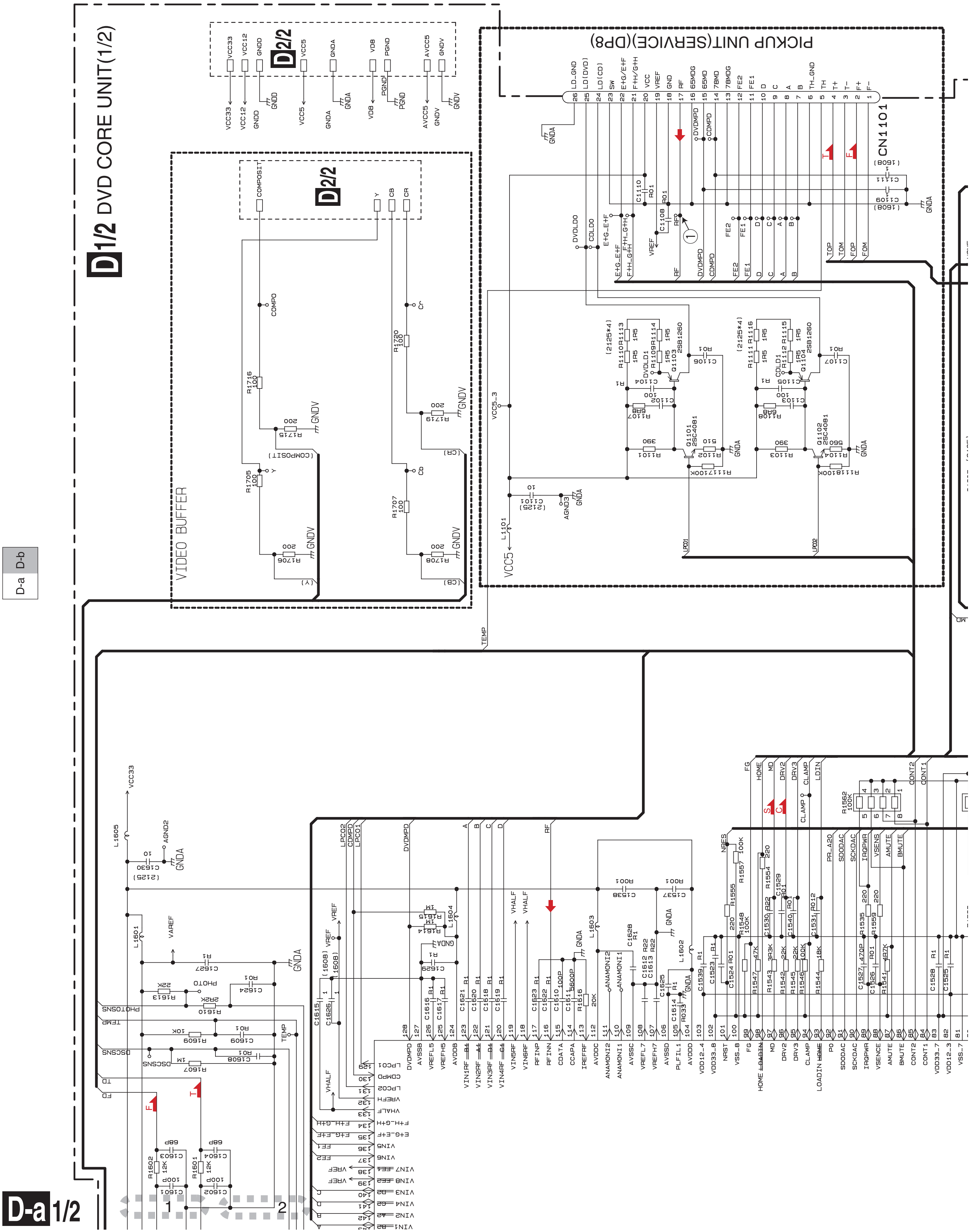

D-a 1/2
D 2/2
RF SIGNAL
F FOCUS SERVO LINE
T TRACKING SERVO LINE
C CARRIAGE SERVO LINE
S SPINDLE SERVO LINE
VCC33
VCC12
EF1501
EF1502
GNDD
X1501 CSS1714
27.000MHz
MN2DS0016AAUB
IC1501
IC1481
EDS1232AATA-75
SDRAM
LATCH
IC1352
TC74LCX16373FT
IC1351
TC7SZ08FU
(TC7SZ08FU)
FLASH 16M
IC1401
CWW1434
IC1402
CWW1435
IC1403
TC7SZ32FU
<DVN - SDRAM>
<DVN - FLASH>
D 1/2

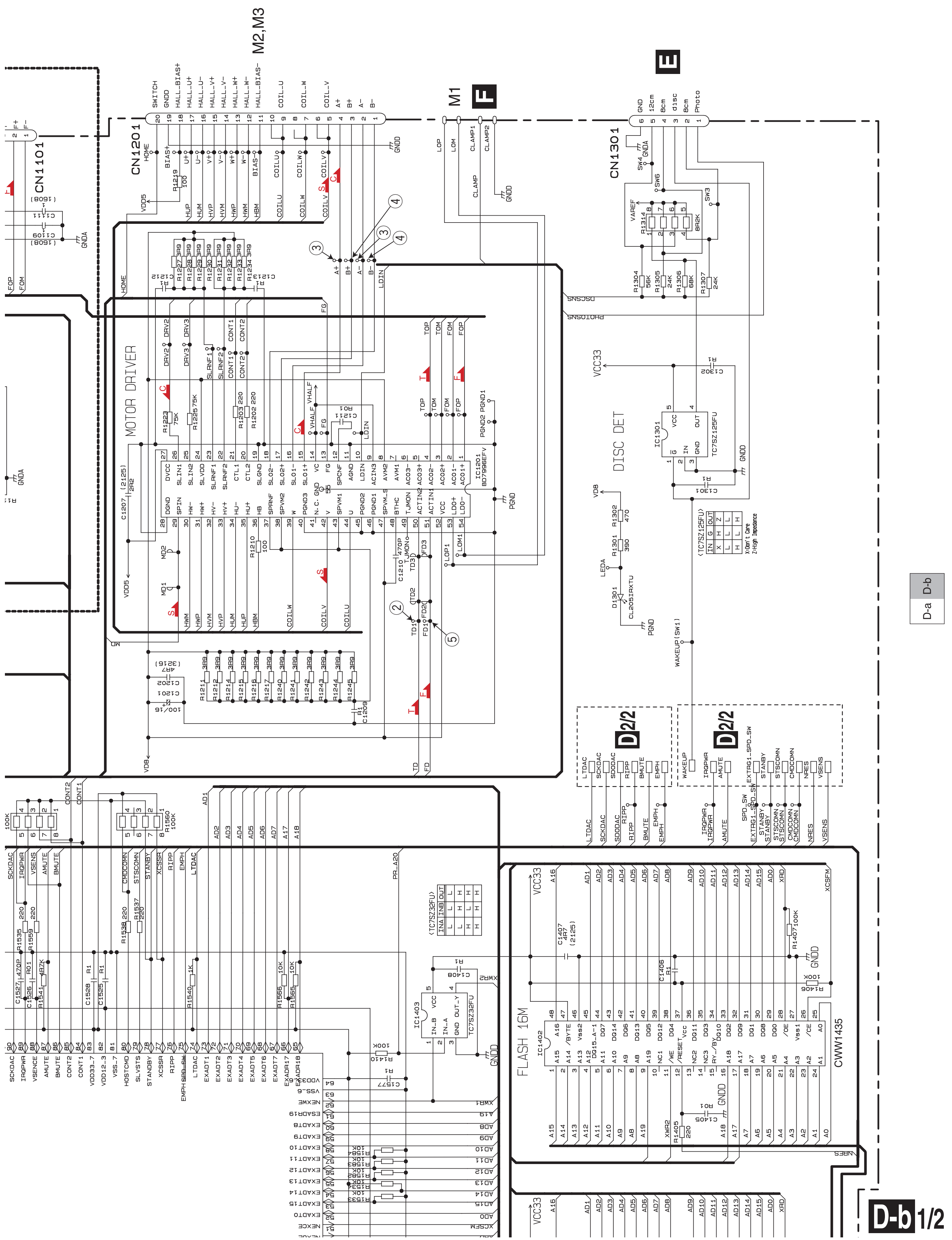
INA	INB	OUT
L	X	L
H	L	L
H	H	H

D-b 1/2

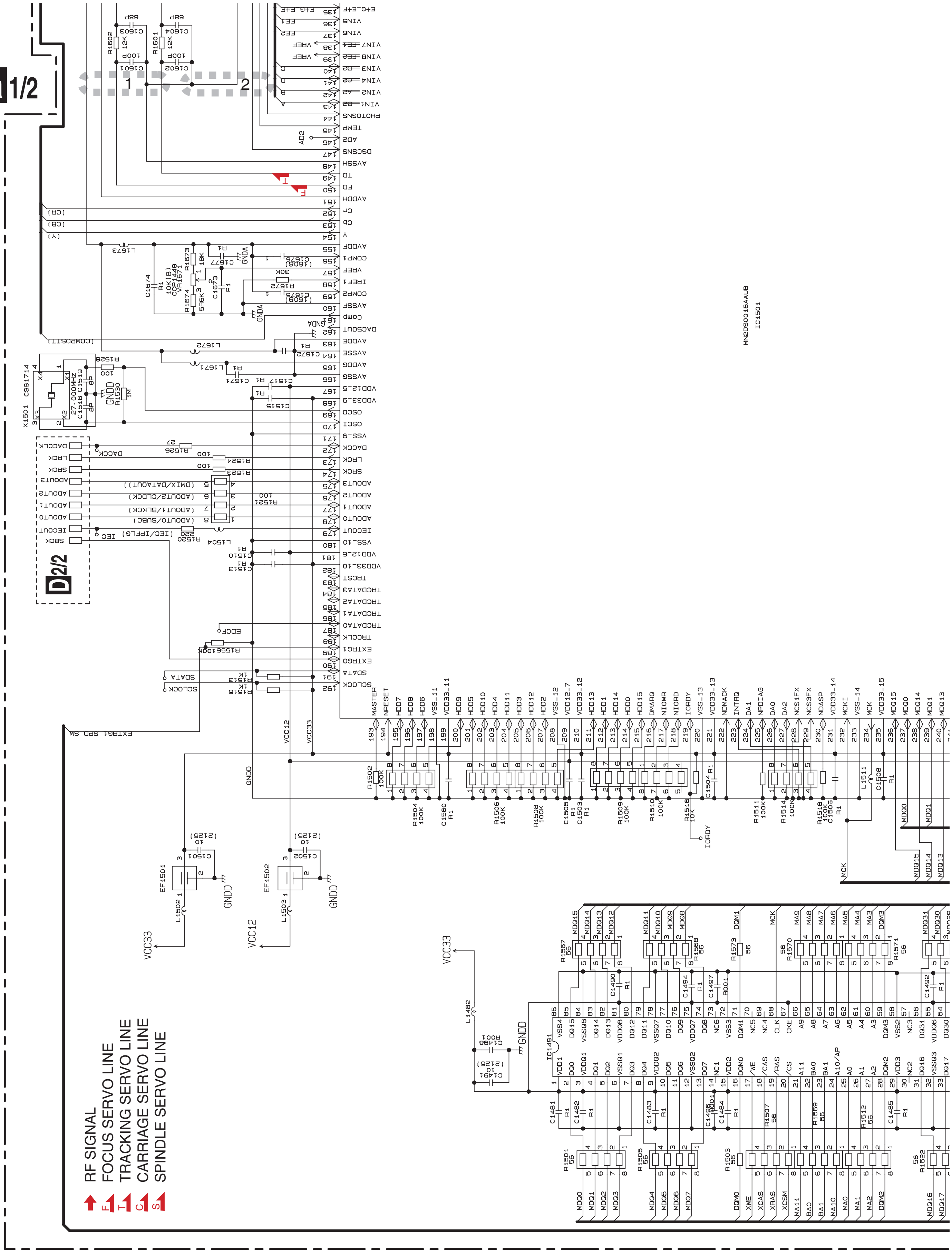

D 1/2 DVD CORE UNIT(1/2)
VIDEO BUFFER
D 2/2
COMPOSIT
Y
CB
CR
VCC33
VCC12
GNDD
VCC5
GNDA
VD8
PGND
AVCC5
GNDV
VCC5
PICKUP UNIT(SERVICE)(DP8)
CN1101
MOTOR DRIVER
CN1201
M2,M3
M1
F
IC1201 BD7996EFV
IC1403
TC7SZ32FU
FLASH 16M
IC1402
CWW1435
DISC DET
IC1301
TC7SZ125FU
CN1301
E
VCC33
GNDA
GNDD
PGND
GNDV
X:Don't Care
Z:High Impedance

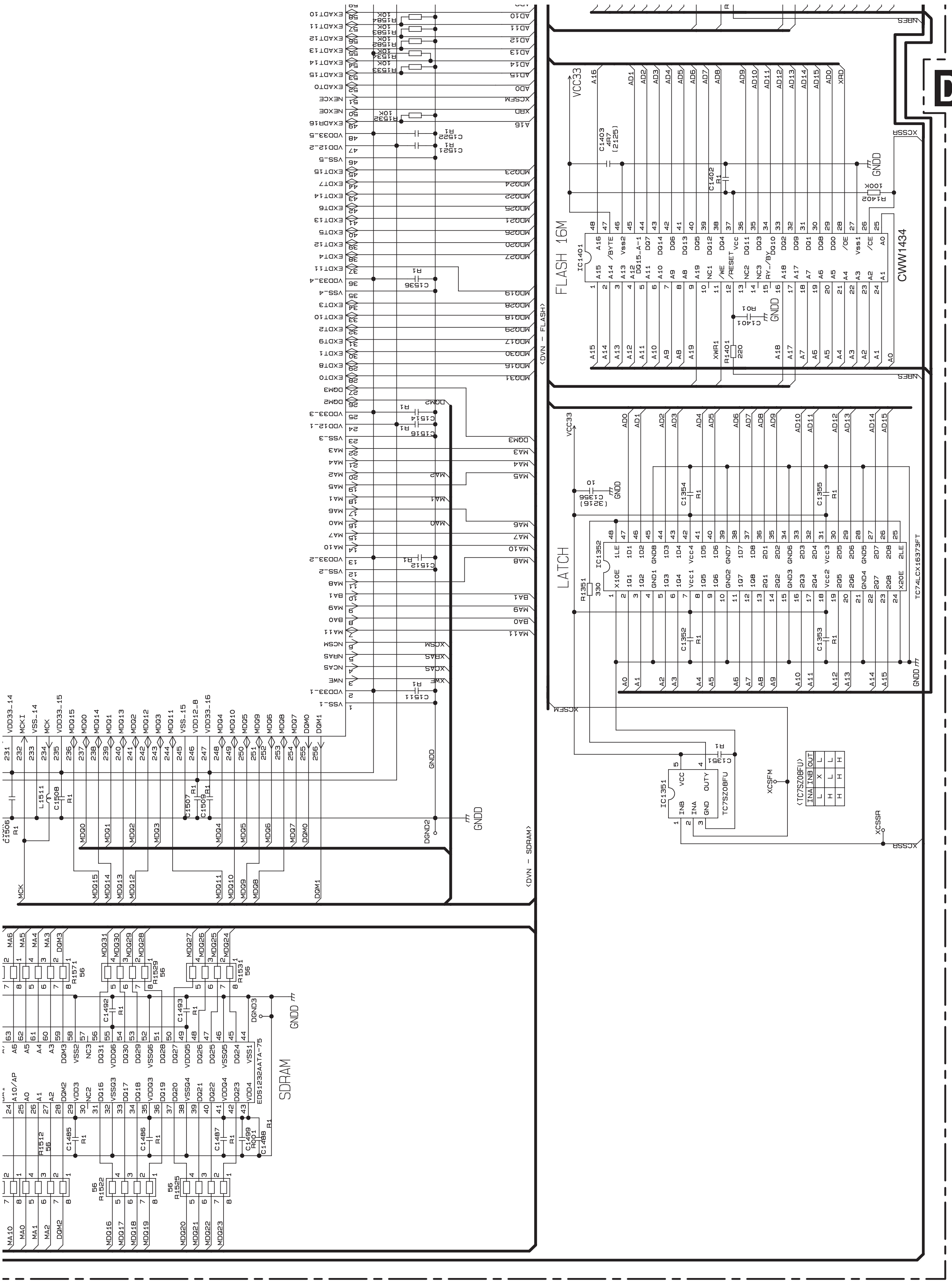
D 1/2

D 1/2 DVD CORE UNIT(1/2)
PICKUP UNIT(SERVICE)(DP8)
CN1101
VIDEO BUFFER
D 2/2
D-a 1/2
D-a
D-b
VCC5
VCC5_3
TEMP
1
2
3
4
A
B
C
D
E
F


5
6
7
8
A
B
C
D
E
F
M2,M3
M1
F
E
CN1201
CN1101
CN1301
MOTOR DRIVER
IC1201
BD7996EFV
DISC DET
IC1301
TC7SZ125FU
VCC33
D2/2
D2/2
D-a
D-b
FLASH 16M
IC1402
CWW1435
IC1403
TC7SZ32FU
D-b 1/2

D-a 1/2


IC1501
MN2DS0016AAUB
IC1481
X1501 CSS1714
27.000MHz
D2/2
D-b
D-a
EF1501
EF1502
VCC33
VCC12
GNDD
GNDA
EXTRG1_SPD_SW
MASTER
NRESET
SDATA
SCLOCK
DACCK
LRCK
SRCK
ADOUT3
ADOUT2
ADOUT1
ADOUT0
IECOUT
SBCK
MCK
IORDY
RF SIGNAL
FOCUS SERVO LINE
TRACKING SERVO LINE
CARRIAGE SERVO LINE
SPINDLE SERVO LINE
F
T
C
S
A
B
C
D
E
F

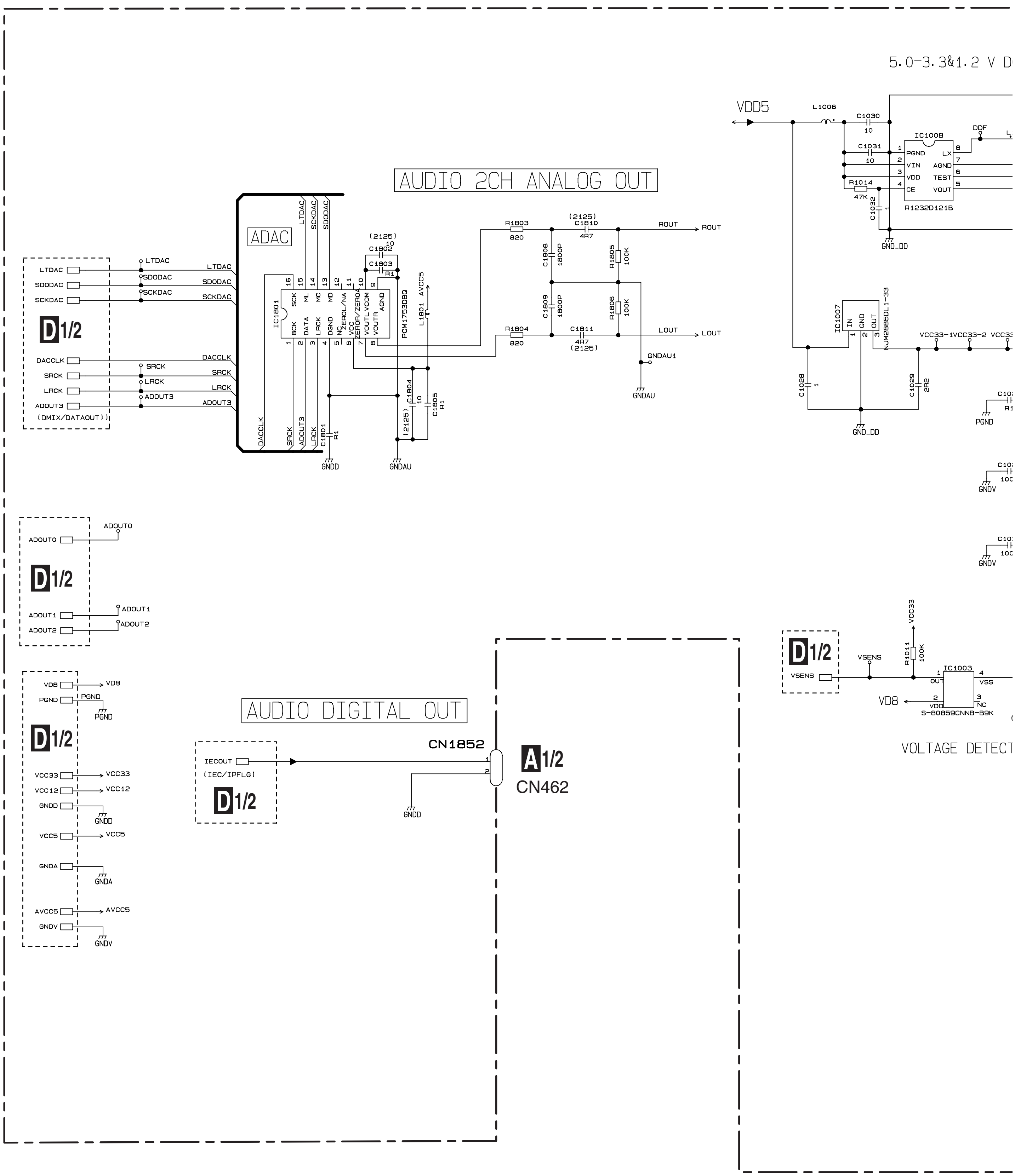

FLASH 16M
IC1401
CWW1434
VCC33
GNDD
C1403 4R7 (2125)
C1402 R1
R1402 100K
C1401 R01
R1401 220
<DVN - FLASH>
LATCH
IC1352
TC74LCX16373FT
R1351 330
C1356 10 (3216)
C1354 R1
C1355 R1
C1352 R1
C1353 R1
IC1351
TC7SZ08FU
C1351 R1
XCSFM
XCSSR
XCSEM
NRES
<TC7SZ08FU>
INA INB OUT
L X L
X L L
H H H
<DVN - SDRAM>
DGND2
DGND3
SDRAM
EDS1232AATA-75
R1571 56
R1529 56
R1531 56
R1512 56
R1522 56
R1525 56
C1485 R1
C1486 R1
C1487 R1
C1488 R1
C1492 R1
C1493 R1
C1499 R01
C1506 R1
L1511
C1508 R1
C1507 R1
C1509 R1
C1511 R1
C1512 R1
C1514 R1
C1516 R1
C1521 R1
C1522 R1
C1536 R1
R1532 10K
R1533 10K
R1534 10K
R1582 10K
R1583 10K
R1584 10K
MCK
GNDD

D-b 1/2

D-a D-b

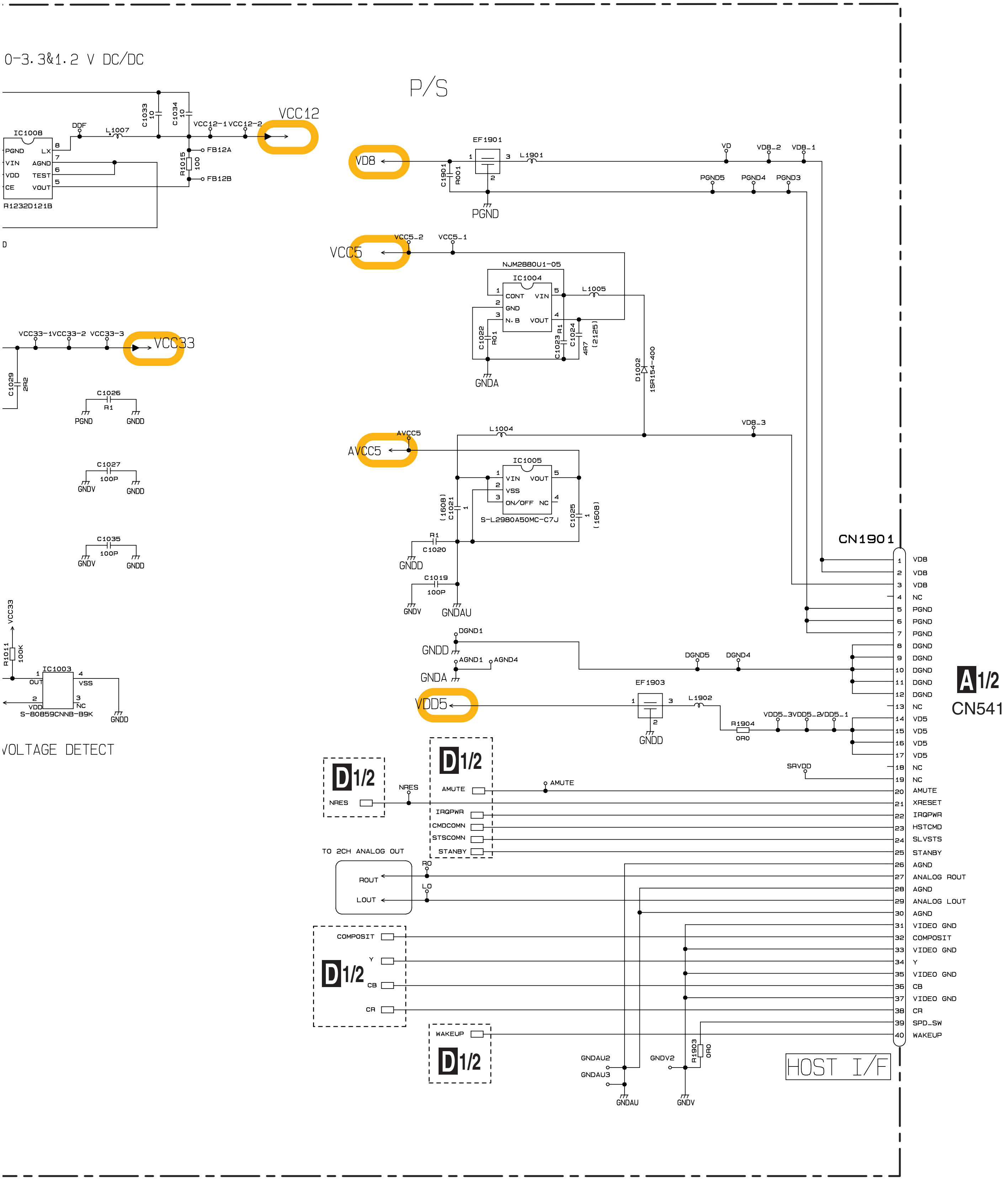
D-a 1/2

10.7 DVD CORE UNIT(2/2)


5.0-3.3&1.2 V D
VDD5
L1006
C1030
10
C1031
10
IC1008
PGND
VIN
VDD
CE
LX
AGND
TEST
VOUT
DDF
R1014
47K
C1032
1
R1232D121B
GND_DD
AUDIO 2CH ANALOG OUT
ADAC
LTDAC
SCKDAC
SDODAC
(2125)
10
C1802
C1803
R1
R1803
820
(2125)
C1810
4R7
ROUT
C1808
1800P
R1805
100K
C1809
1800P
R1806
100K
R1804
820
C1811
4R7
(2125)
LOUT
GNDAU1
GNDAU
IC1801
BCK
DATA
LRCK
DGND
NC
VCC
VOUTL VCOM
VOUTR
AGND
SCK
ML
MC
MD
ZEROL/NA
ZEROR/ZEROA
PCM1753DBQ
L1801
AVCC5
C1804
10
(2125)
C1805
R1
C1801
R1
GNDD
GNDAU
DACCLK
SRCK
ADOUT3
LRCK
LTDAC
SDODAC
SCKDAC
DACCLK
SRCK
LRCK
ADOUT3
(DMIX/DATAOUT)
D1/2
IC1007
IN
GND
OUT
NJM2885DL1-33
VCC33-1
VCC33-2
VCC33
C1028
1
C1029
2R2
GND_DD
PGND
GNDV
100
ADOUT0
ADOUT1
ADOUT2
D1/2
VD8
PGND
VCC33
VCC12
GNDD
VCC5
GNDA
AVCC5
GNDV
D1/2
AUDIO DIGITAL OUT
IECOUT
(IEC/IPFLG)
D1/2
CN1852
1
2
GNDD
A1/2
CN462
D1/2
VSENS
VCC33
R1011
100K
IC1003
OUT
VDD
VSS
NC
VD8
S-80859CNNB-B9K
VOLTAGE DETECT

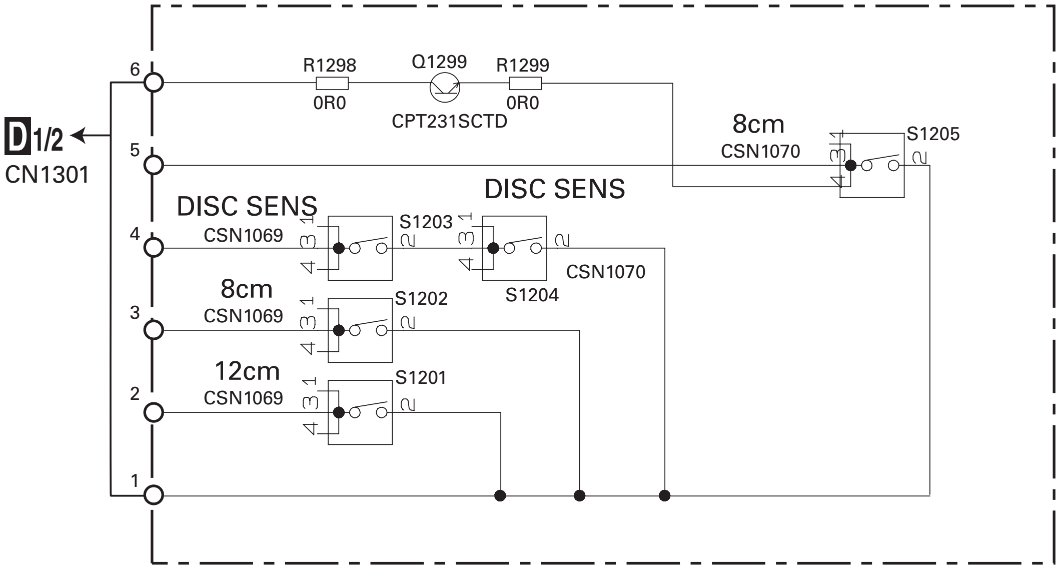
D2/2

D2/2 DVD CORE UNIT(2/2)


0-3.3&1.2 V DC/DC
P/S
IC1008
PGND
VIN
VDD
CE
LX
AGND
TEST
VOUT
8
7
6
5
R1232D121B
DDF
L1007
C1033
10
C1034
10
VCC12-1
VCC12-2
VCC12
R1015
100
FB12A
FB12B
D
VD8
EF1901
L1901
C1901
R001
PGND
VD
VD8_2
VD8_1
PGND5
PGND4
PGND3
VCC5
VCC5_2
VCC5_1
NJM2880U1-05
IC1004
CONT
VIN
GND
N.B
VOUT
L1005
C1022
R01
C1023
R1
C1024
4R7
(2125)
GNDA
D1002
1SR154-400
VCC33-1
VCC33-2
VCC33-3
VCC33
C1029
2R2
C1026
R1
PGND
GNDD
C1027
100P
GNDV
GNDD
C1035
100P
GNDV
GNDD
AVCC5
L1004
VD8_3
IC1005
VIN
VOUT
VSS
ON/OFF
NC
S-L2980A50MC-C7J
C1021
1
(1608)
C1025
1
(1608)
R1
C1020
GNDD
C1019
100P
GNDV
GNDAU
R1011
100K
VCC33
IC1003
OUT
VDD
VSS
NC
S-80859CNNB-B9K
GNDD
VOLTAGE DETECT
GNDD
DGND1
GNDA
AGND1
AGND4
DGND5
DGND4
VDD5
EF1903
L1902
GNDD
VDD5_3
VDD5_2
VDD5_1
R1904
0R0
SRVDD
D1/2
NRES
NRES
D1/2
AMUTE
IRQPWR
CMDCOMN
STSCOMN
STANBY
AMUTE
TO 2CH ANALOG OUT
ROUT
LOUT
RO
LO
COMPOSIT
Y
CB
CR
D1/2
WAKEUP
D1/2
GNDAU2
GNDAU3
GNDAU
GNDV2
GNDV
R1903
0R0
CN1901
1 VD8
2 VD8
3 VD8
4 NC
5 PGND
6 PGND
7 PGND
8 DGND
9 DGND
10 DGND
11 DGND
12 DGND
13 NC
14 VD5
15 VD5
16 VD5
17 VD5
18 NC
19 NC
20 AMUTE
21 XRESET
22 IRQPWR
23 HSTCMD
24 SLVSTS
25 STANBY
26 AGND
27 ANALOG ROUT
28 AGND
29 ANALOG LOUT
30 AGND
31 VIDEO GND
32 COMPOSIT
33 VIDEO GND
34 Y
35 VIDEO GND
36 CB
37 VIDEO GND
38 CR
39 SPD_SW
40 WAKEUP
HOST I/F
A1/2
CN541

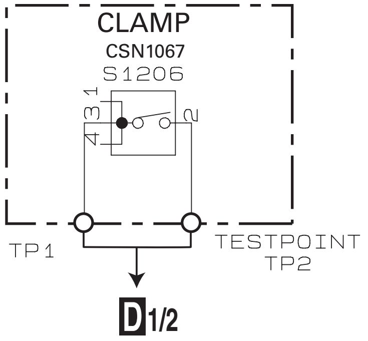
10.8 COMPOUND UNIT(A) AND COMPOUND UNIT(B)

E COMPOUND UNIT(A)



D1/2
CN1301
6
5
4
3
2
1
R1298
0R0
Q1299
CPT231SCTD
R1299
0R0
8cm
CSN1070
S1205
DISC SENS
CSN1069
S1203
DISC SENS
S1204
CSN1070
8cm
CSN1069
S1202
12cm
CSN1069
S1201

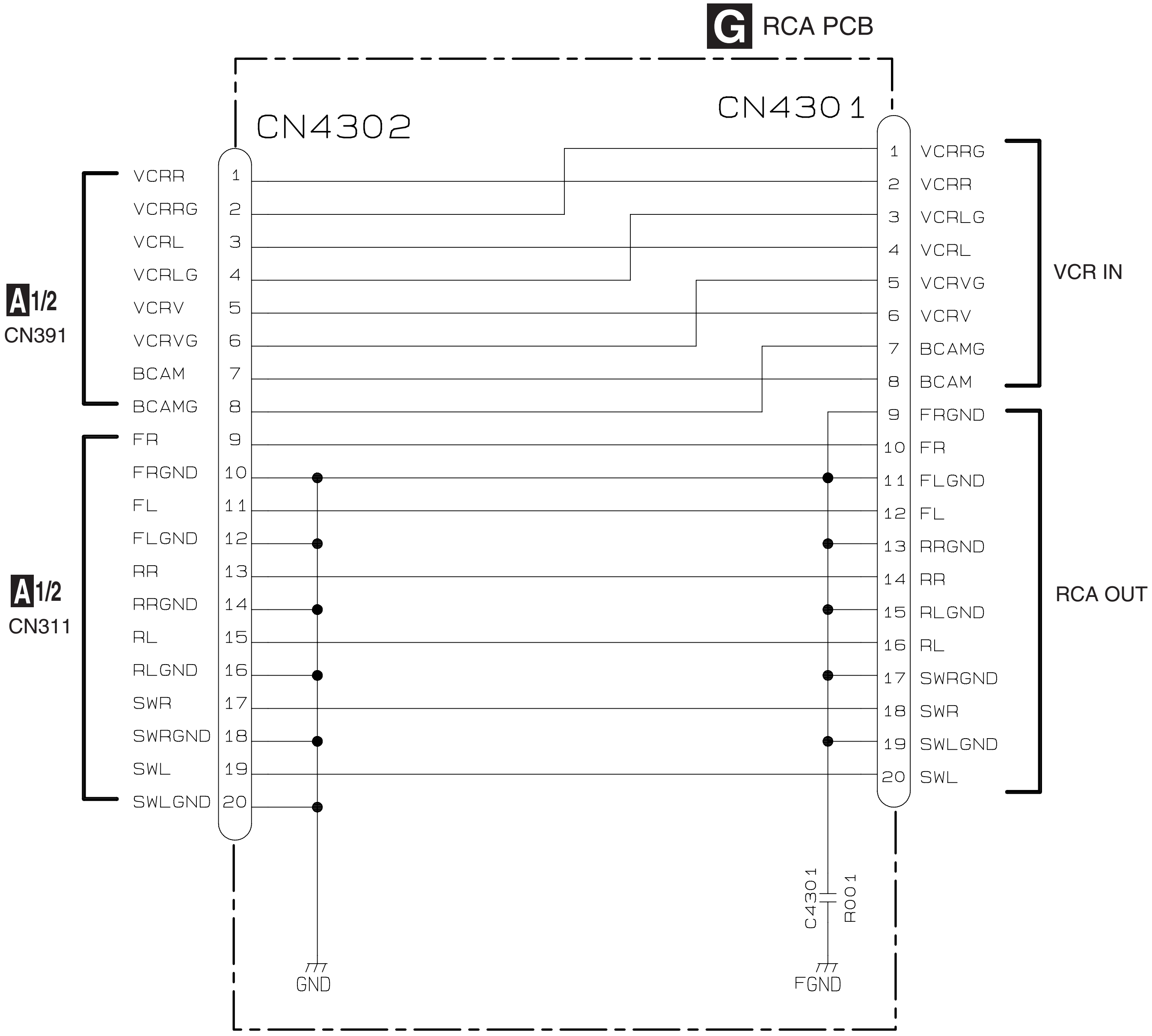
F COMPOUND UNIT(B)



CLAMP
CSN1067
S1206
TP1
TESTPOINT
TP2
D1/2

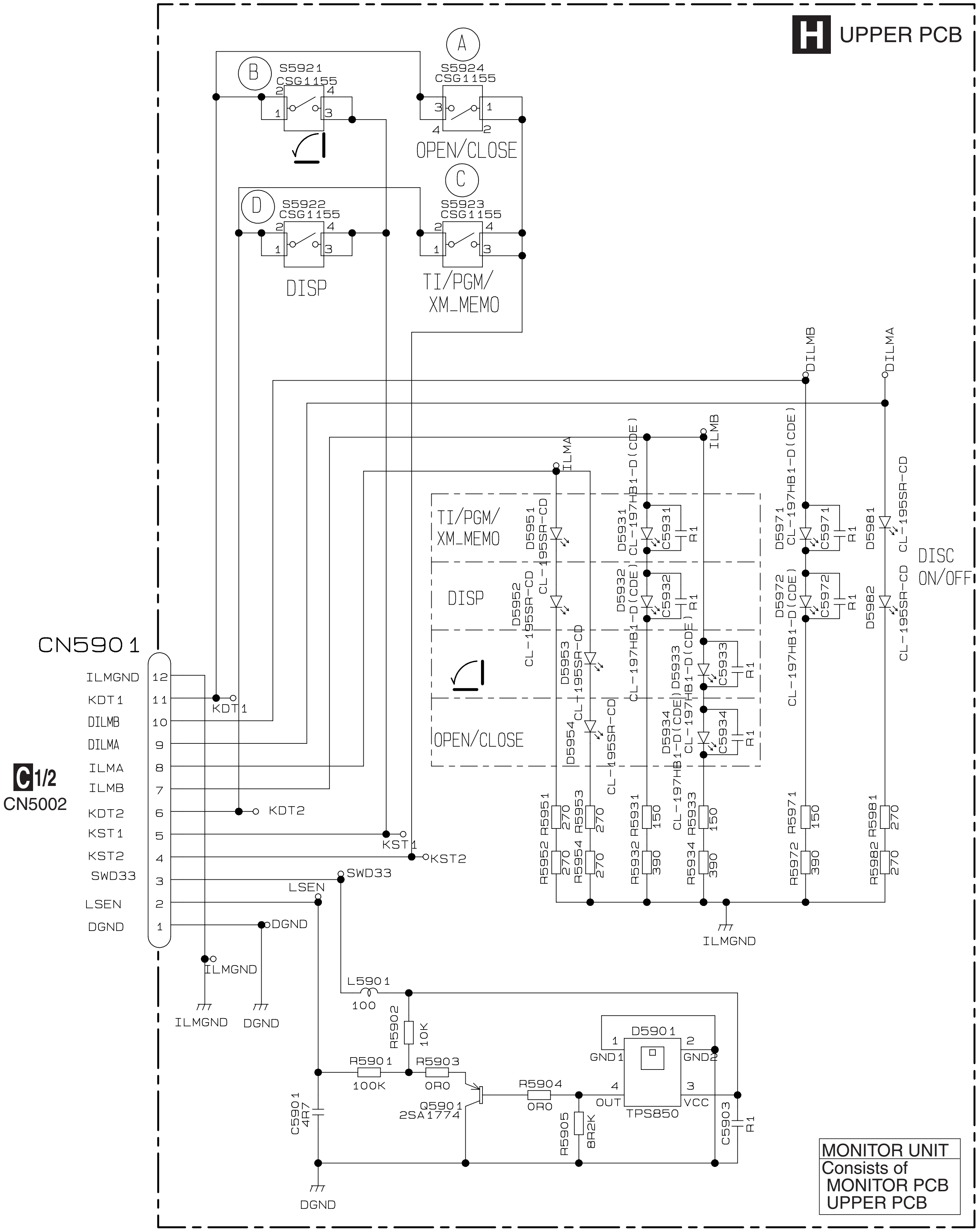
E F

10.9 RCA PCB

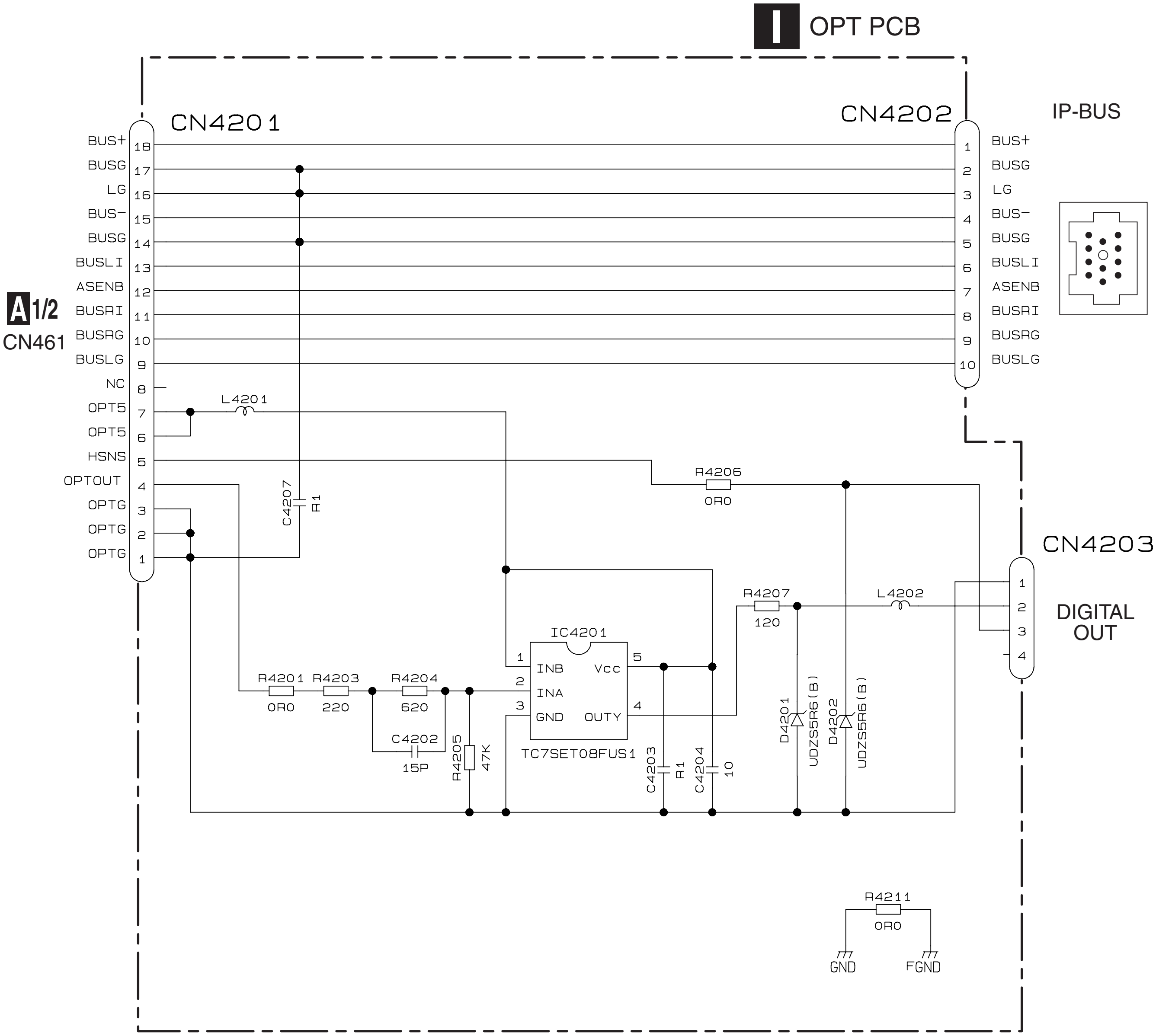

G RCA PCB
CN4302
CN4301
A 1/2
CN391
A 1/2
CN311
VCRR 1
VCRRG 2
VCRL 3
VCRLG 4
VCRV 5
VCRVG 6
BCAM 7
BCAMG 8
FR 9
FRGND 10
FL 11
FLGND 12
RR 13
RRGND 14
RL 15
RLGND 16
SWR 17
SWRGND 18
SWL 19
SWLGND 20
1 VCRRG
2 VCRR
3 VCRLG
4 VCRL
5 VCRVG
6 VCRV
7 BCAMG
8 BCAM
9 FRGND
10 FR
11 FLGND
12 FL
13 RRGND
14 RR
15 RLGND
16 RL
17 SWRGND
18 SWR
19 SWLGND
20 SWL
VCR IN
RCA OUT
C4301
R001
GND
FGND

OPT/RCA UNIT
Consists of
RCA PCB
OPT PCB

10.10 UPPER PCB


H UPPER PCB
A
B
C
D
S5921
CSG1155
S5924
CSG1155
OPEN/CLOSE
S5922
CSG1155
S5923
CSG1155
DISP
TI/PGM/
XM_MEMO
CN5901
ILMGND 12
KDT1 11
DILMB 10
DILMA 9
ILMA 8
ILMB 7
KDT2 6
KST1 5
KST2 4
SWD33 3
LSEN 2
DGND 1
C 1/2
CN5002
KDT1
KDT2
KST1
KST2
SWD33
LSEN
DGND
ILMGND
DILMB
DILMA
ILMA
ILMB
D5951 CL-195SR-CD
D5952 CL-195SR-CD
D5953 CL-195SR-CD
D5954 CL-195SR-CD
D5931 CL-197HB1-D(CDE)
D5932 CL-197HB1-D(CDE)
D5933 CL-197HB1-D(CDE)
D5934 CL-197HB1-D(CDE)
D5971 CL-197HB1-D(CDE)
D5972 CL-197HB1-D(CDE)
D5981 CL-195SR-CD
D5982 CL-195SR-CD
C5931 R1
C5932 R1
C5933 R1
C5934 R1
C5971 R1
C5972 R1
DISC
ON/OFF
R5951 270
R5952 270
R5953 270
R5954 270
R5931 150
R5932 390
R5933 150
R5934 390
R5971 150
R5972 390
R5981 270
R5982 270
ILMGND
DGND
L5901
100
R5902
10K
R5901
100K
R5903
0R0
Q5901
2SA1774
R5904
0R0
R5905
8R2K
C5901
4R7
D5901
1 GND1
2 GND2
4 OUT
3 VCC
TPS850
C5903
R1
DGND
MONITOR UNIT
Consists of
MONITOR PCB
UPPER PCB

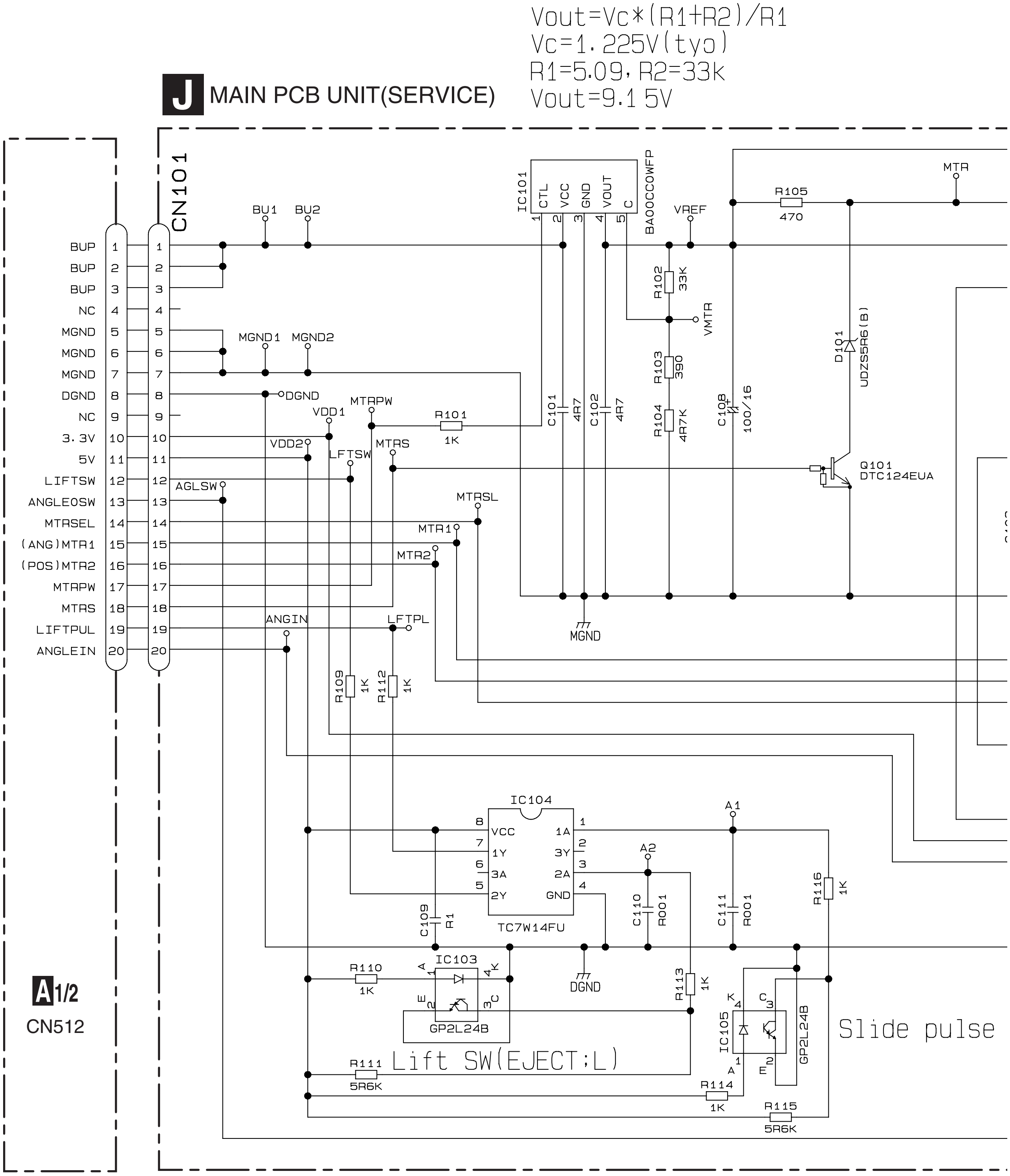
10.11 OPT PCB

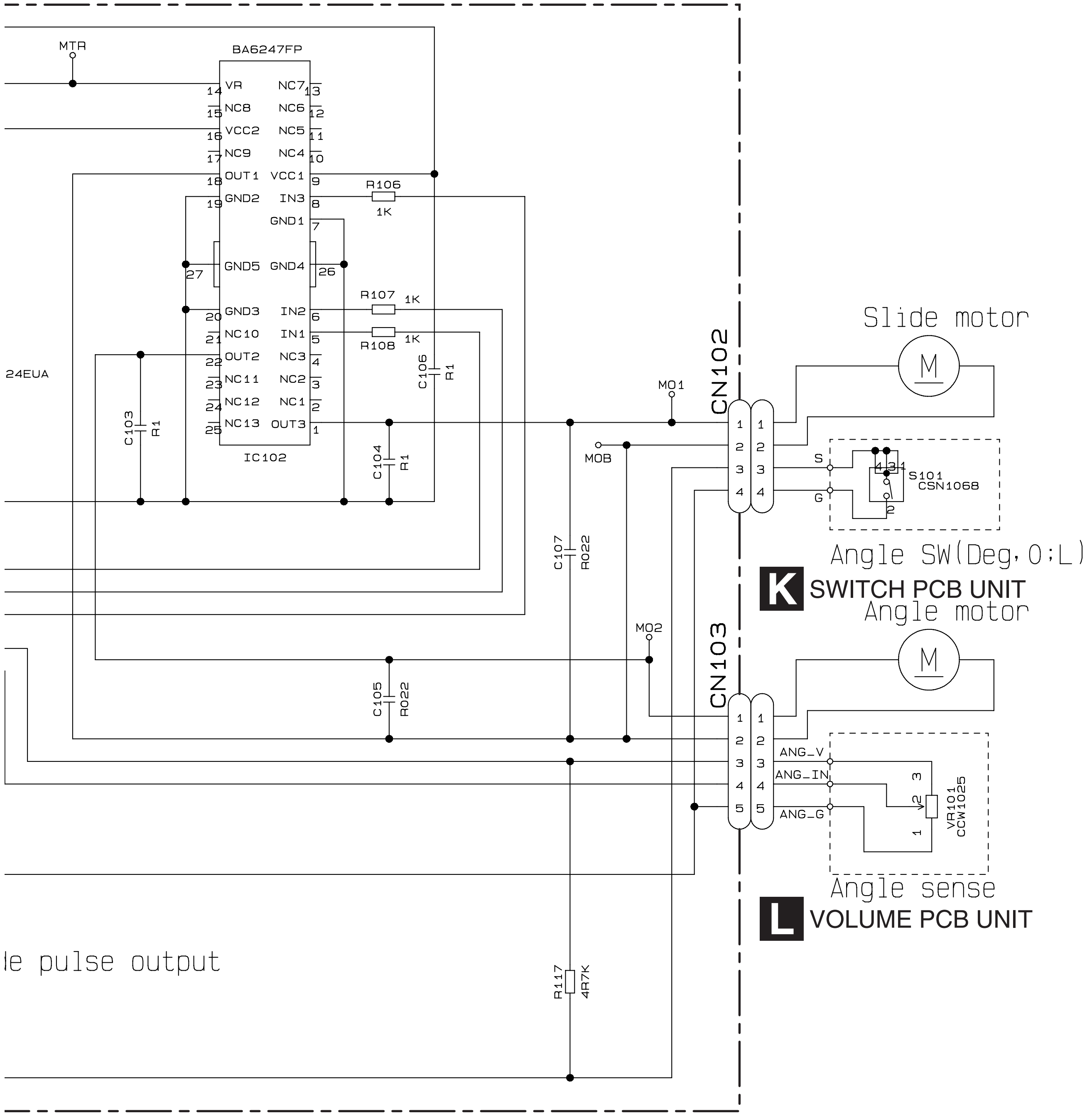

I OPT PCB
CN4201
CN4202
IP-BUS
A 1/2
CN461
BUS+ 18
BUSG 17
LG 16
BUS− 15
BUSG 14
BUSLI 13
ASENB 12
BUSRI 11
BUSRG 10
BUSLG 9
NC 8
OPT5 7
OPT5 6
HSNS 5
OPTOUT 4
OPTG 3
OPTG 2
OPTG 1
1 BUS+
2 BUSG
3 LG
4 BUS−
5 BUSG
6 BUSLI
7 ASENB
8 BUSRI
9 BUSRG
10 BUSLG
L4201
C4207 R1
R4206 0R0
CN4203
DIGITAL OUT
R4207 120
L4202
IC4201
TC7SET08FUS1
INB INA GND Vcc OUTY
R4201 0R0
R4203 220
R4204 620
C4202 15P
R4205 47K
C4203 R1
C4204 10
D4201 UDZS5R6(B)
D4202 UDZS5R6(B)
R4211 0R0
GND FGND

OPT/RCA UNIT
Consists of
RCA PCB
OPT PCB

A B C D E F

10.12 MAIN PCB UNIT(SERVICE), SWITCH PCB UNIT AND VOLUME PCB UNIT


Vout=Vc*(R1+R2)/R1
Vc=1.225V(typ)
R1=5.09, R2=33k
Vout=9.15V
J MAIN PCB UNIT(SERVICE)
CN101
BUP 1
BUP 2
BUP 3
NC 4
MGND 5
MGND 6
MGND 7
DGND 8
NC 9
3.3V 10
5V 11
LIFTSW 12
ANGLEOSW 13
MTRSEL 14
(ANG)MTR1 15
(POS)MTR2 16
MTRPW 17
MTRS 18
LIFTPUL 19
ANGLEIN 20
BU1
BU2
MGND1
MGND2
DGND
VDD1
VDD2
MTRPW
LFTSW
MTRS
AGLSW
MTRSL
MTR1
MTR2
ANGIN
LFTPL
IC101
BA00CC0WFP
CTL VCC GND VOUT C
VREF
R101 1K
C101 4R7
C102 4R7
R102 33K
VMTR
R103 390
R104 4R7K
C108 100/16
R105 470
MTR
D101 UDZS5R6(B)
Q101 DTC124EUA
MGND
R109 1K
R112 1K
IC104
VCC 1A 1Y 3Y 3A 2A 2Y GND
TC7W14FU
A1
A2
C109 R1
C110 R001
C111 R001
R116 1K
IC103
GP2L24B
R110 1K
DGND
R113 1K
IC105
GP2L24B
Slide pulse
R111 5R6K
Lift SW(EJECT;L)
R114 1K
R115 5R6K
A 1/2
CN512


MTR
BA6247FP
14 VR
15 NC8
16 VCC2
17 NC9
18 OUT1
19 GND2
27 GND5
20 GND3
21 NC10
22 OUT2
23 NC11
24 NC12
25 NC13
NC7 13
NC6 12
NC5 11
NC4 10
VCC1 9
IN3 8
GND1 7
GND4 26
IN2 6
IN1 5
NC3 4
NC2 3
NC1 2
OUT3 1
IC102
R106 1K
R107 1K
R108 1K
C106 R1
C103 R1
C104 R1
24EUA
MO1
MOB
MO2
C107 R022
C105 R022
R117 4R7K
CN102
CN103
Slide motor
M
S
G
S101 CSN1068
Angle SW(Deg,0;L)
K SWITCH PCB UNIT
Angle motor
ANG_V
ANG_IN
ANG_G
VR101 CCW1025
Angle sense
L VOLUME PCB UNIT
le pulse output

10.13 WAVEFORMS

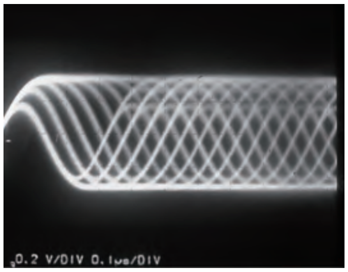
● DVD Core Unit

Note:1. The encircled number denote measuring points in the circuit diagram.
2. Reference voltage: 1.65 V(TD1,FD1)(=VHALF)
2.2 V(RF)(=VREF)

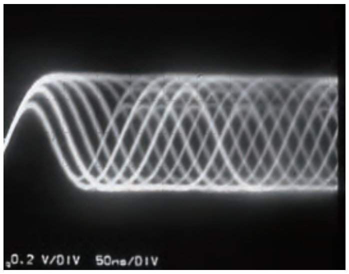
In the waveform, it is seeing on the GND standard.
Offset of 1.65 V or 2.2 V is put in.

1 RF
2 TD1
3 A+, A-
4 B+, B-
5 FD1

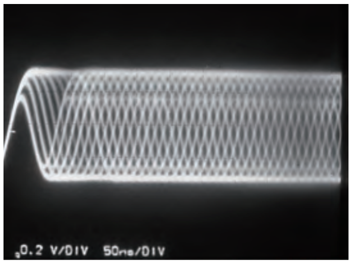
①RF 0.2 V/div(AC) 0.1 μs/div
CDRF(x 4 CLV)



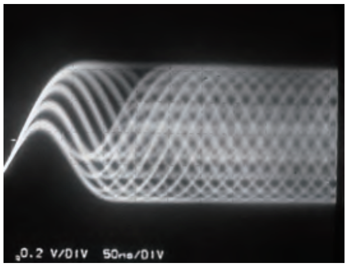
①RF 0.2 V/div(AC) 50 ns/div
CDRF(x 20 CAV Inner peripheral)



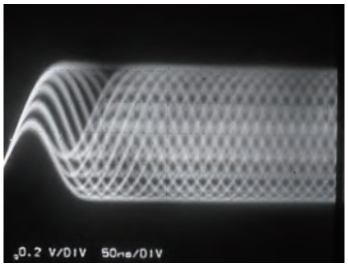
①RF 0.2 V/div(AC) 50 ns/div
CDRF(x 20 CAV Peripheral)



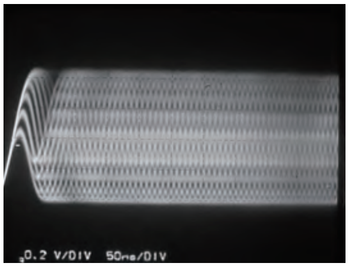
①RF 0.2 V/div(AC) 50 ns/div
DVDRF(x 1.3 ZCAV)



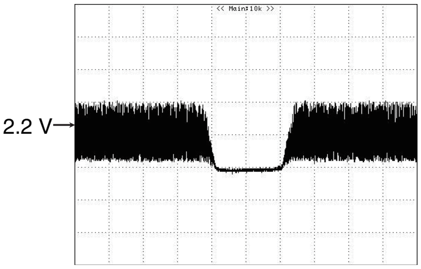
①RF 0.2 V/div(AC) 50 ns/div
DVDRF(x 5 CAV Inner peripheral)



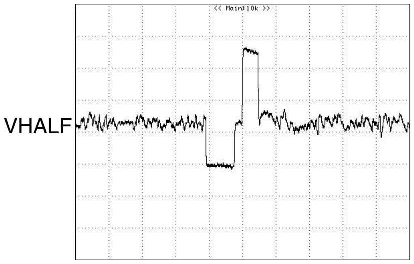
①RF 0.2 V/div(AC) 50 ns/div
DVDRF(x 5 CAV Peripheral)



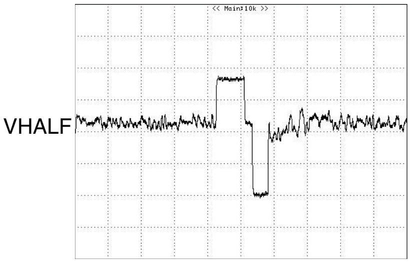
①RF 0.5 V/div 100 μs/div
DVDRF(BD1 mm)



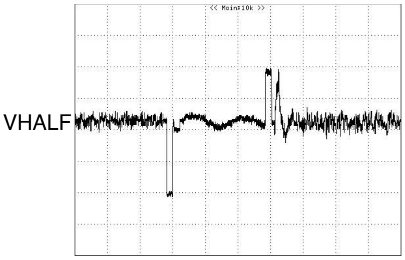
②TD1 0.1 V/div 100 μs/div
Interval FWD



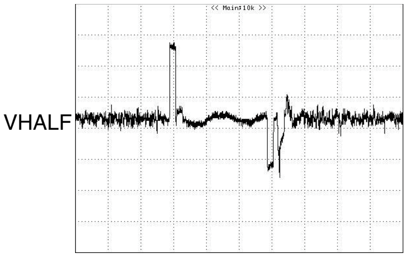
②TD1 0.1 V/div 100 μs/div
Interval REV



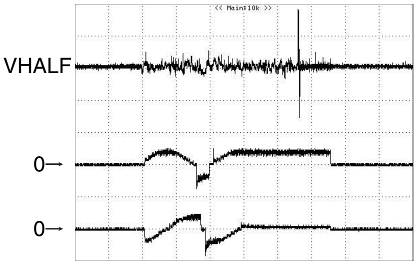
②TD1 0.1 V/div 500 µs/div
Multi 32 FWD



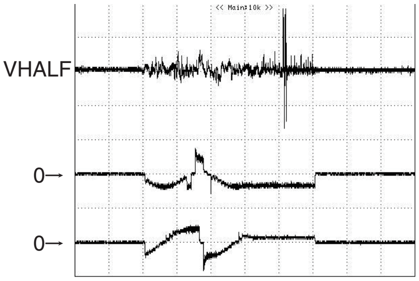
②TD1 0.1 V/div 500 µs/div
Multi 32 REV



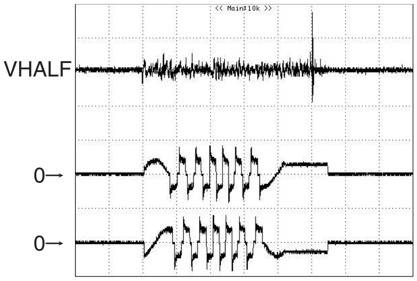
②CH1 : TD1 0.5 V/div 10 ms/div
③CH2 : A^+-A^- 10.0 V/div 10 ms/div
(LPF of the oscilloscope is set to 10 kHz)
④CH3 : B^+-B^- 10.0 V/div 10 ms/div
(LPF of the oscilloscope is set to 10 kHz)
Traverse 900 FWD(Short)



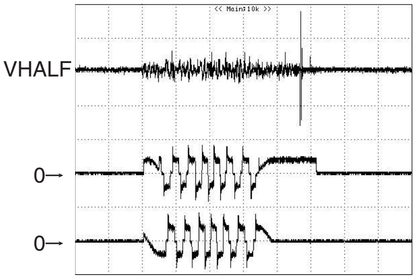
②CH1 : TD1 0.5 V/div 10 ms/div
③CH2 : A^+-A^- 10.0 V/div 10 ms/div
(LPF of the oscilloscope is set to 10 kHz)
④CH3 : B^+-B^- 10.0 V/div 10 ms/div
(LPF of the oscilloscope is set to 10 kHz)
Traverse 900 REV(Short)



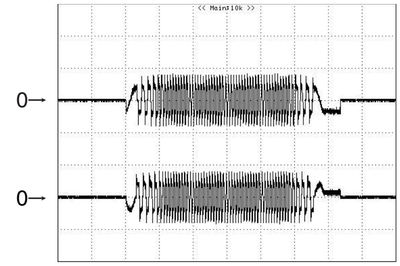
②CH1 : TD1 0.5 V/div 20 ms/div
③CH2 : A^+-A^- 10.0 V/div 20 ms/div
(LPF of the oscilloscope is set to 10 kHz)
④CH3 : B^+-B^- 10.0 V/div 20 ms/div
(LPF of the oscilloscope is set to 10 kHz)
Traverse 5 000 FWD(Long)



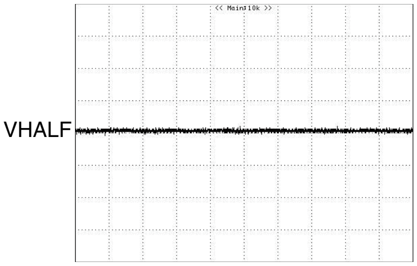
②CH1 : TD1 0.5 V/div 20 ms/div
③CH2 : A^+-A^- 10.0 V/div 20 ms/div
(LPF of the oscilloscope is set to 10 kHz)
④CH3 : B^+-B^- 10.0 V/div 20 ms/div
(LPF of the oscilloscope is set to 10 kHz)
Traverse 5 000 REV(Long)



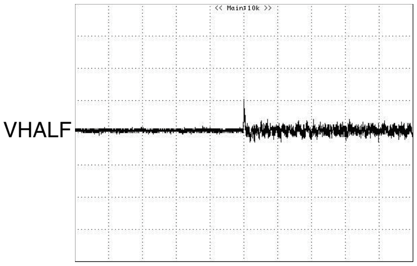
③CH : A^+-A^- 10 V/div 50 ms/div
④CH2 : B^+-B^-
ID search Inside → Outside



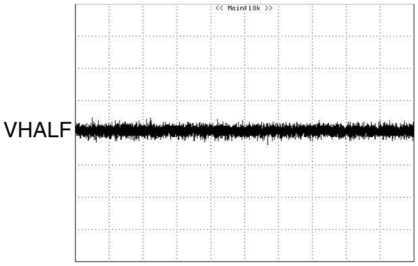
②TD1 0.5 Vdiv 20 ms/div
Play TD



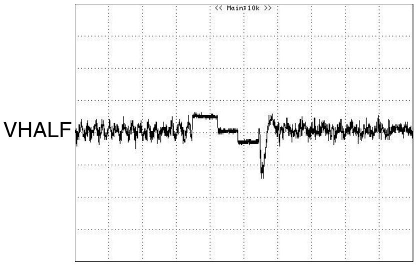
⑤FD1 0.5 V/div 1 ms/div
Focus Close



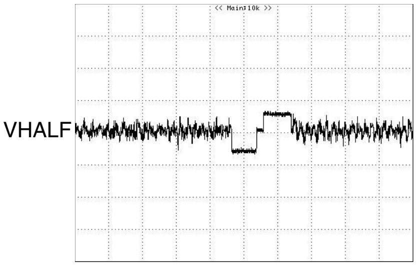
⑤FD1 0.5 V/div 20 ms/div
Play FD



⑤FD1 0.5 V/div 500 µs/div
Focus Jump L0→L1



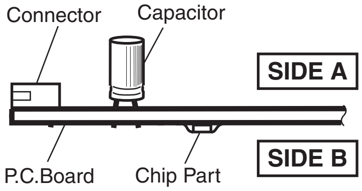
⑤FD1 0.5 V/div 500 µs/div
Focus Jump L1→L0



11. PCB CONNECTION DIAGRAM
11.1 MOTHER UNIT

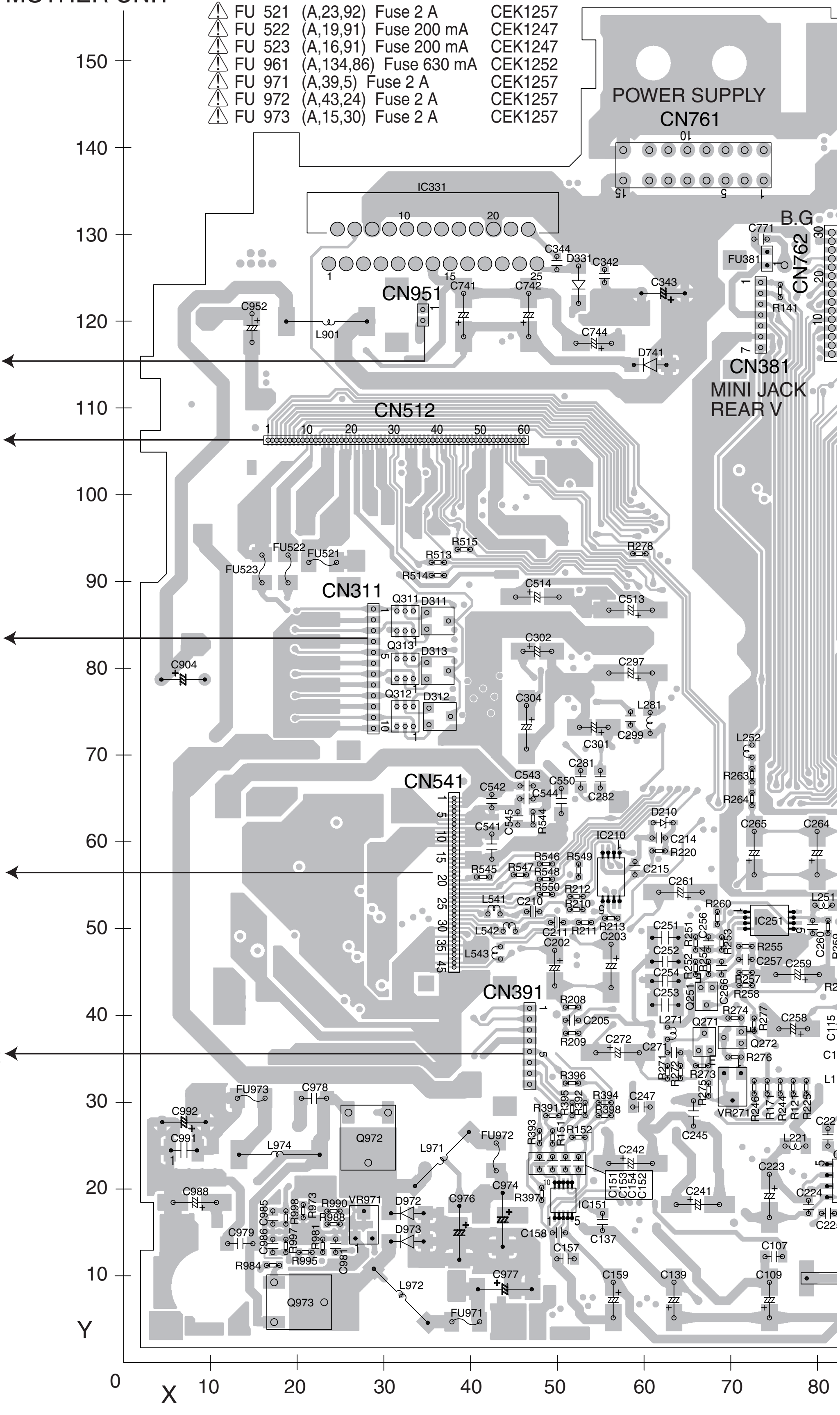
NOTE FOR PCB DIAGRAMS

1. The parts mounted on this PCB include all necessary parts for several destination.
   For further information for respective destinations, be sure to check with the schematic diagram.
2. Viewpoint of PCB diagrams

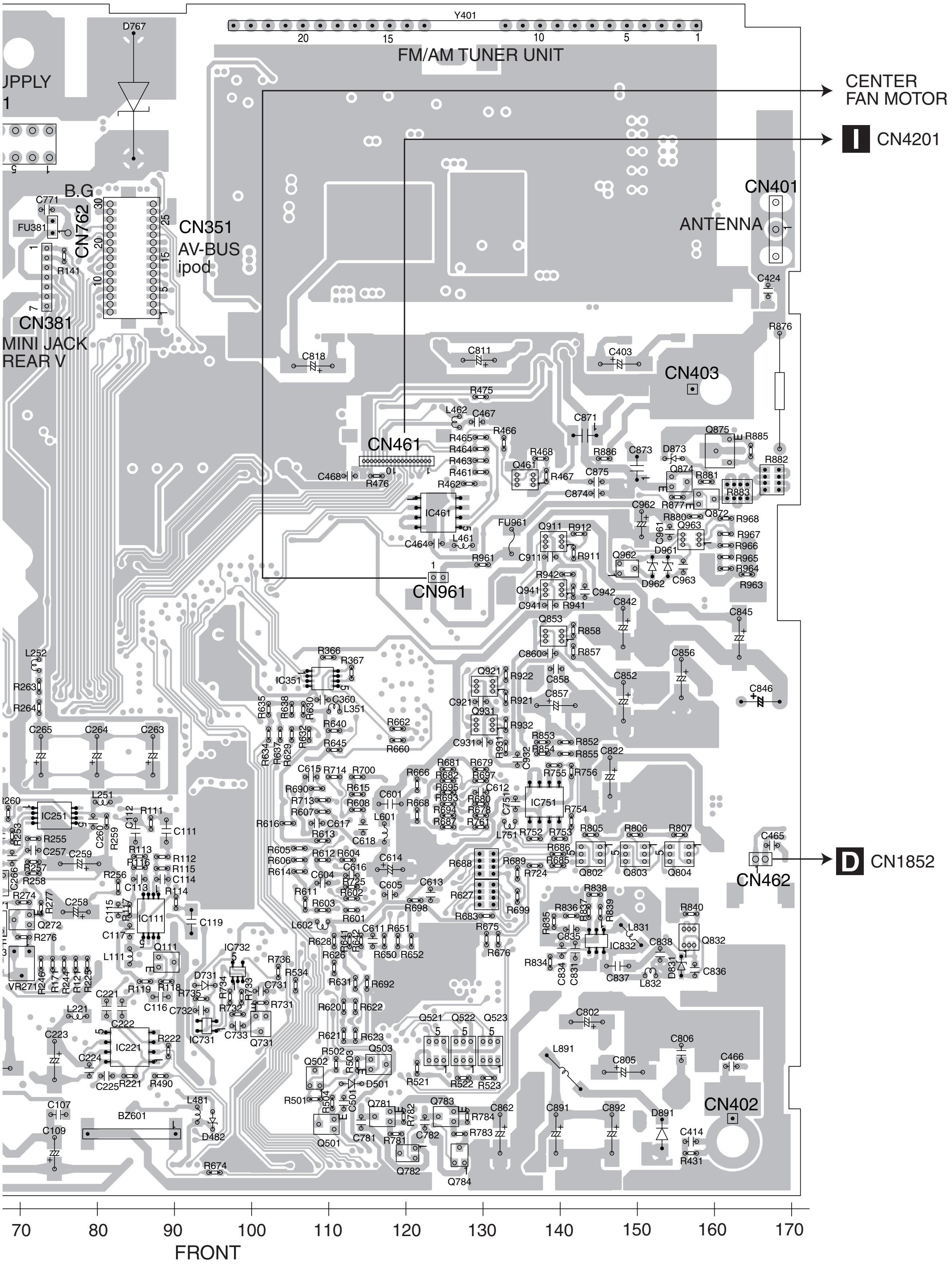

Connector
Capacitor
SIDE A
SIDE B
P.C.Board
Chip Part

A MOTHER UNIT

⚠ FU 521	(A,23,92)	Fuse 2 A	CEK1257
⚠ FU 522	(A,19,91)	Fuse 200 mA	CEK1247
⚠ FU 523	(A,16,91)	Fuse 200 mA	CEK1247
⚠ FU 961	(A,134,86)	Fuse 630 mA	CEK1252
⚠ FU 971	(A,39,5)	Fuse 2 A	CEK1257
⚠ FU 972	(A,43,24)	Fuse 2 A	CEK1257
⚠ FU 973	(A,15,30)	Fuse 2 A	CEK1257


POWER SUPPLY
CN761
IC331
CN951
B.G
CN762
CN381
MINI JACK
REAR V
REAR FAN MOTOR
CN512
C CN5003
J CN101
CN311
G CN4302
CN541
D CN1901
CN391
G CN4302
IC210
IC251
IC151
Q972
Q973
Q311
Q312
Q313
D311
D312
D313
L901
L971
L972
L974
FU521
FU522
FU523
FU971
FU972
FU973
VR971
VR271
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
Y
0
X
10
20
30
40
50
60
70
80

SIDE A


Y401
20
15
10
5
1
FM/AM TUNER UNIT
CENTER FAN MOTOR
I CN4201
D767
UPPLY
B.G
C771
FU381
CN762
CN351
AV-BUS
ipod
R141
CN381
MINI JACK
REAR V
CN401
ANTENNA
C424
R876
C818
C811
C403
CN403
R475
L462
C467
R466
C871
CN461
R465
R464
R463
R461
R462
C468
R476
R468
Q461
R467
R886
C873
D873
Q875
R885
R882
C875
C874
Q874
R881
R883
IC461
C962
R877
R880
Q872
R968
L461
C464
FU961
Q911
R912
C961
Q963
R967
R966
R965
R964
R963
R961
C911
R911
Q962
D961
D962
C963
CN961
R942
Q941
C942
C941
R941
C842
C845
Q853
R858
C860
R857
C856
R366
R367
IC351
C360
L351
Q921
R922
C858
C857
C921
R921
Q931
R932
C846
C852
L252
R263
R264
R635
R638
R630
R629
R632
R634
R637
R640
R645
R662
R660
C931
R931
C932
R853
R854
R852
R855
C822
C265
C264
C263
C615
R714
R700
R690
R615
R713
R608
R607
C617
R616
R613
C601
L601
C618
R666
R668
R681
R682
R695
R693
R694
R687
R679
R697
R680
R678
R761
C612
C751
IC751
R755
R756
R754
L751
R752
R753
R686
R685
R805
R806
R807
C465
Q802
Q803
Q804
CN462
D CN1852
R260
IC251
L251
C260
R259
C112
R111
C111
R255
C257
C259
R113
R112
R115
R116
C114
R257
R258
R256
C113
R114
C258
R274
R277
C115
R117
IC111
C119
Q272
R276
C117
L111
Q111
VR271
R605
R606
R614
R612
R604
C616
C614
C604
R725
R602
R611
C605
C613
R688
R689
R724
R627
R698
R683
R699
R675
R676
R603
R601
L602
C611
R651
R628
R626
R650
R652
R838
R836
R837
R839
R840
R835
C835
L831
IC832
C838
Q832
R834
C834
C831
C837
L832
D831
C836
IC732
R736
R534
R246
R247
R244
R121
R122
D731
R734
R733
C731
R731
R119
R118
R735
C116
C732
R732
C221
L221
R631
R692
R620
R622
C802
C222
C223
IC221
R222
IC731
C733
Q731
R621
R623
Q521
Q522
Q523
L891
C224
C225
R221
R490
R502
Q503
Q502
R503
D501
R521
R522
R523
C805
C806
C466
C107
L481
R501
R504
C501
Q781
R782
Q783
C862
C891
C892
D891
CN402
C109
BZ601
D482
Q501
C781
R781
C782
R784
R783
C414
R431
R674
Q782
Q784
70
80
90
100
110
120
130
140
150
160
170
FRONT

A

B

C

D

E

F

A

A

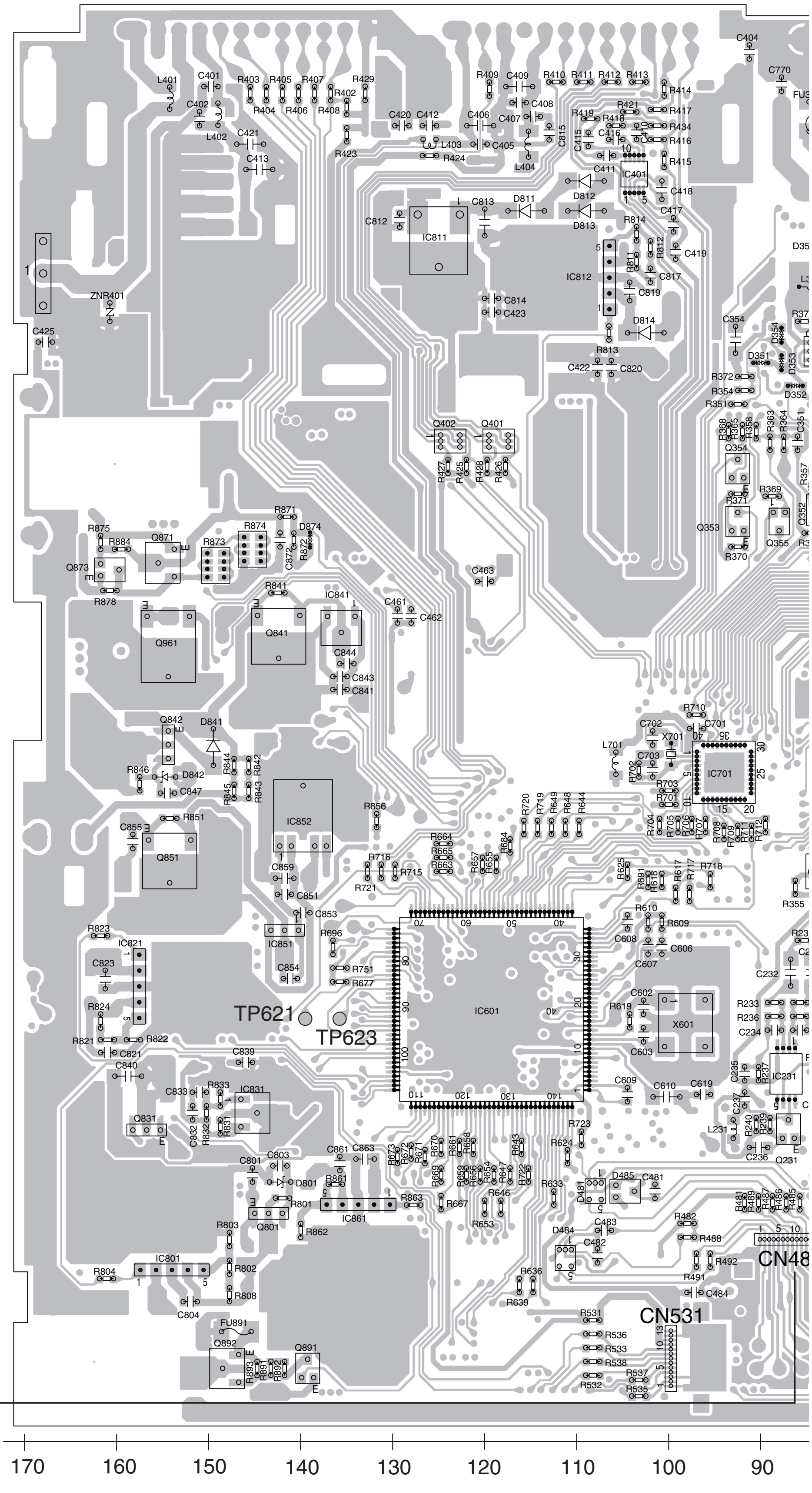
A MOTHER UNIT

B

C

D

E


C404
C770
FU3
L401
C401
R403
R405
R407
R429
R409
C409
R410
R411
R412
R413
R414
C402
R404
R406
R408
R402
C408
R421
R417
L402
C421
C420
C412
C406
C407
R419
R418
C416
R434
C415
C815
R416
R423
L403
R424
C405
10
R415
C413
L404
C411
IC401
C418
D812
D811
C813
C812
IC811
1
5
D813
R814
C417
R812
R811
IC812
C419
C817
C819
D35
L3
C814
C423
R37
ZNR401
C425
C354
D814
D354
R813
D351
D353
C422
C820
R372
R354
D352
R351
Q402
Q401
R368
R365
R358
R363
R364
C351
Q354
R427
R425
R428
R426
R357
R369
R371
Q352
Q353
R370
Q355
R871
R875
R884
Q871
R873
R874
D874
C872
R872
Q873
C463
R878
R841
IC841
C461
C462
Q961
Q841
C844
C843
C841
R710
C702
C701
X701
35
40
Q842
D841
L701
C703
30
R846
D842
R844
R842
C847
R845
R843
R702
IC701
25
R703
R701
5
10
15
20
R856
R720
R719
R649
R648
R644
R704
R705
R706
R707
R708
R709
R711
R712
C855
R851
IC852
R664
R665
R663
R684
R716
R715
R721
R657
R655
R625
R691
R618
R617
R717
R718
C859
C851
C853
R610
R609
R355
R823
IC821
IC851
R696
70
60
50
40
C608
C606
C607
R23
C823
C854
R751
R677
80
30
C232
C602
R233
R619
R236
R824
TP621
TP623
90
IC601
40
20
X601
C234
R821
R822
C821
C603
C840
C839
100
10
C235
IC231
C609
C610
C619
R833
IC831
C833
110
120
130
140
C237
Q831
C832
R832
R831
R723
L231
R240
C236
Q231
C801
C803
C861
C863
R673
R672
R671
R670
R661
R658
R643
R624
D801
R861
R669
R659
R656
R654
R647
R722
R633
D481
D485
C481
R481
R801
R863
R667
R646
R489
R487
R486
R485
Q801
IC861
R653
R482
R803
R862
D484
C483
R488
C482
IC801
R802
R636
R492
R804
R491
CN48
R639
C484
R808
C804
R531
CN531
FU891
Q892
R536
R533
Q891
R893
R891
R892
R538
R537
R532
R535
170
160
150
140
130
120
110
100
90

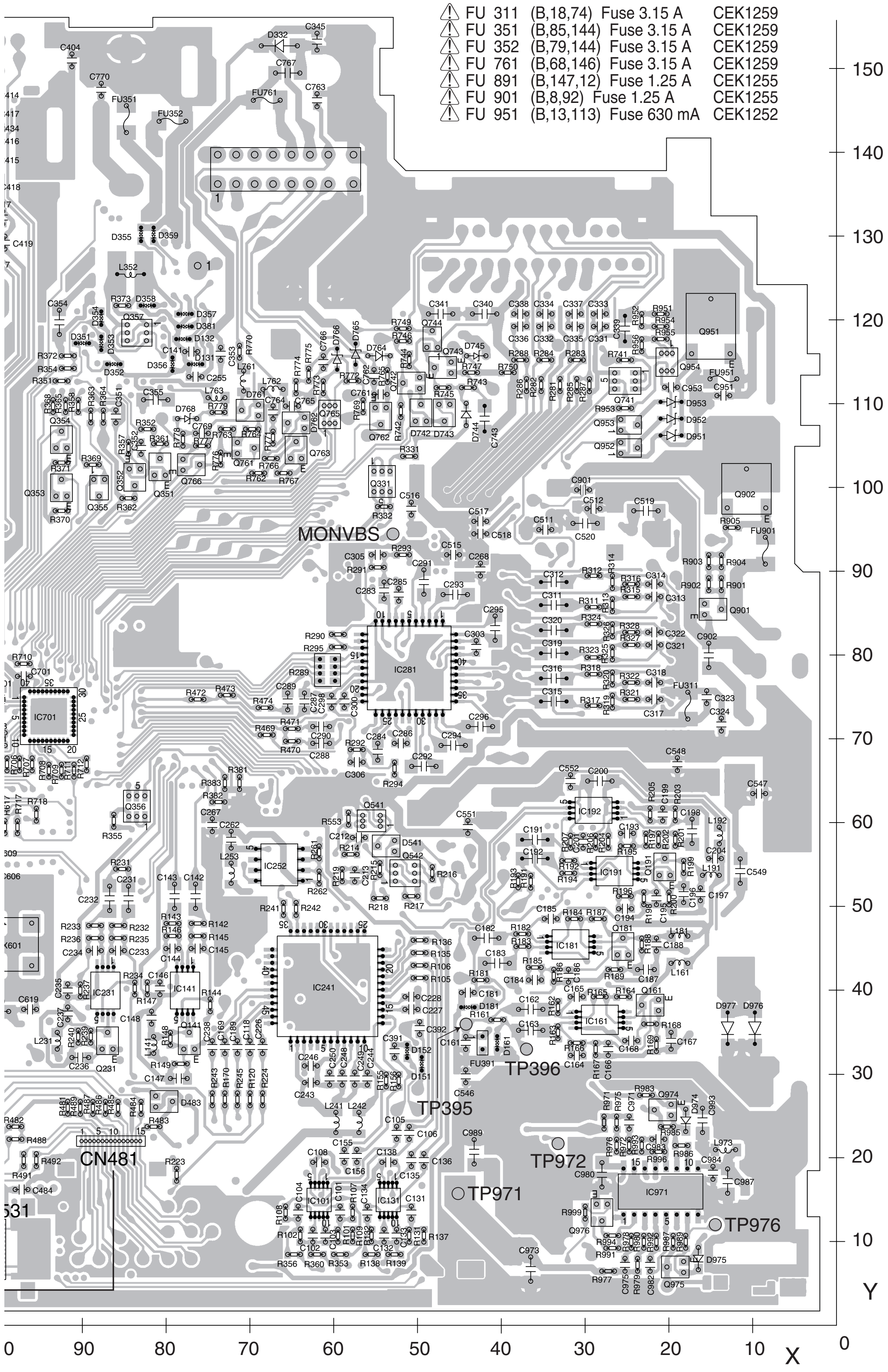
B CN4001

A

F

SIDE B

⚠ FU	311	(B,18,74)	Fuse 3.15 A	CEK1259
⚠ FU	351	(B,85,144)	Fuse 3.15 A	CEK1259
⚠ FU	352	(B,79,144)	Fuse 3.15 A	CEK1259
⚠ FU	761	(B,68,146)	Fuse 3.15 A	CEK1259
⚠ FU	891	(B,147,12)	Fuse 1.25 A	CEK1255
⚠ FU	901	(B,8,92)	Fuse 1.25 A	CEK1255
⚠ FU	951	(B,13,113)	Fuse 630 mA	CEK1252



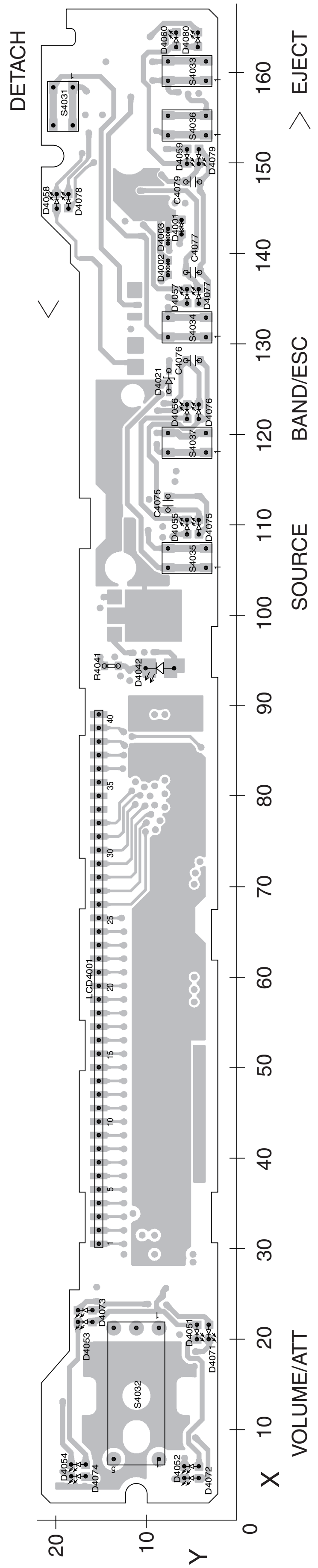
MONVBS
IC281
IC701
IC252
IC241
IC231
IC141
IC192
IC191
IC181
IC161
IC101
IC131
IC971
Q951
Q902
Q901
CN481
TP395
TP396
TP971
TP972
TP976
FU351
FU352
FU761
FU951
FU901
FU311
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
Y
0
90
80
70
60
50
40
30
20
10
X
0

A

11.2 KEYBOARD UNIT

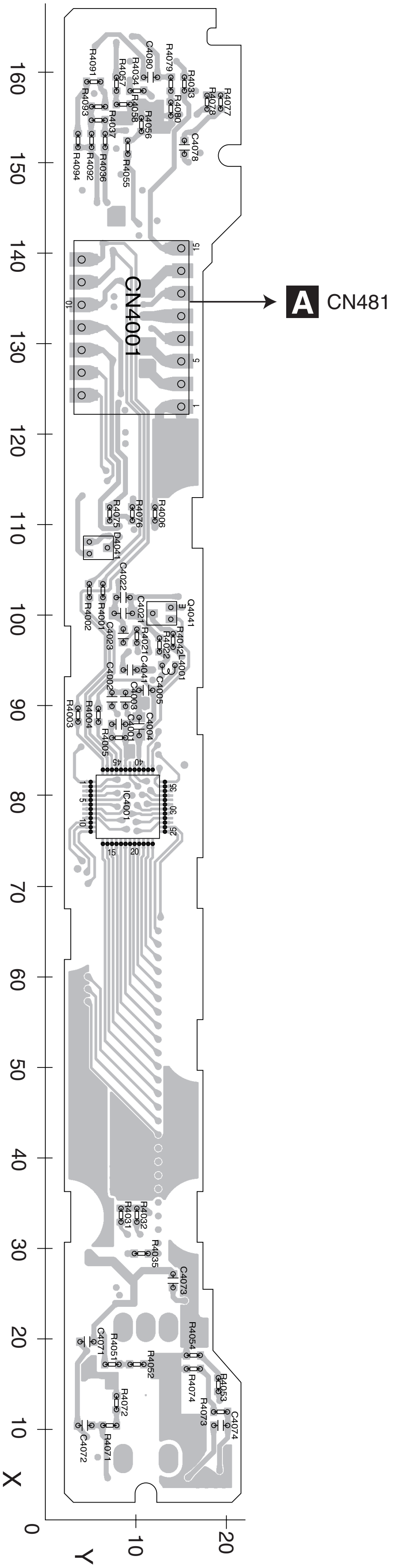
B KEYBOARD UNIT

SIDE A


DETACH
EJECT
BAND/ESC
SOURCE
VOLUME/ATT
X
Y
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
S4031
S4033
S4036
S4034
S4037
S4035
S4032
D4058
D4078
D4060
D4080
D4059
D4079
C4079
D4003
D4001
D4002
C4077
D4057
D4077
C4076
D4021
D4056
D4076
C4075
D4055
D4075
R4041
D4042
LCD4001
1
5
10
15
20
25
30
35
40
D4053
D4073
D4051
D4071
D4054
D4074
D4052
D4072

B KEYBOARD UNIT

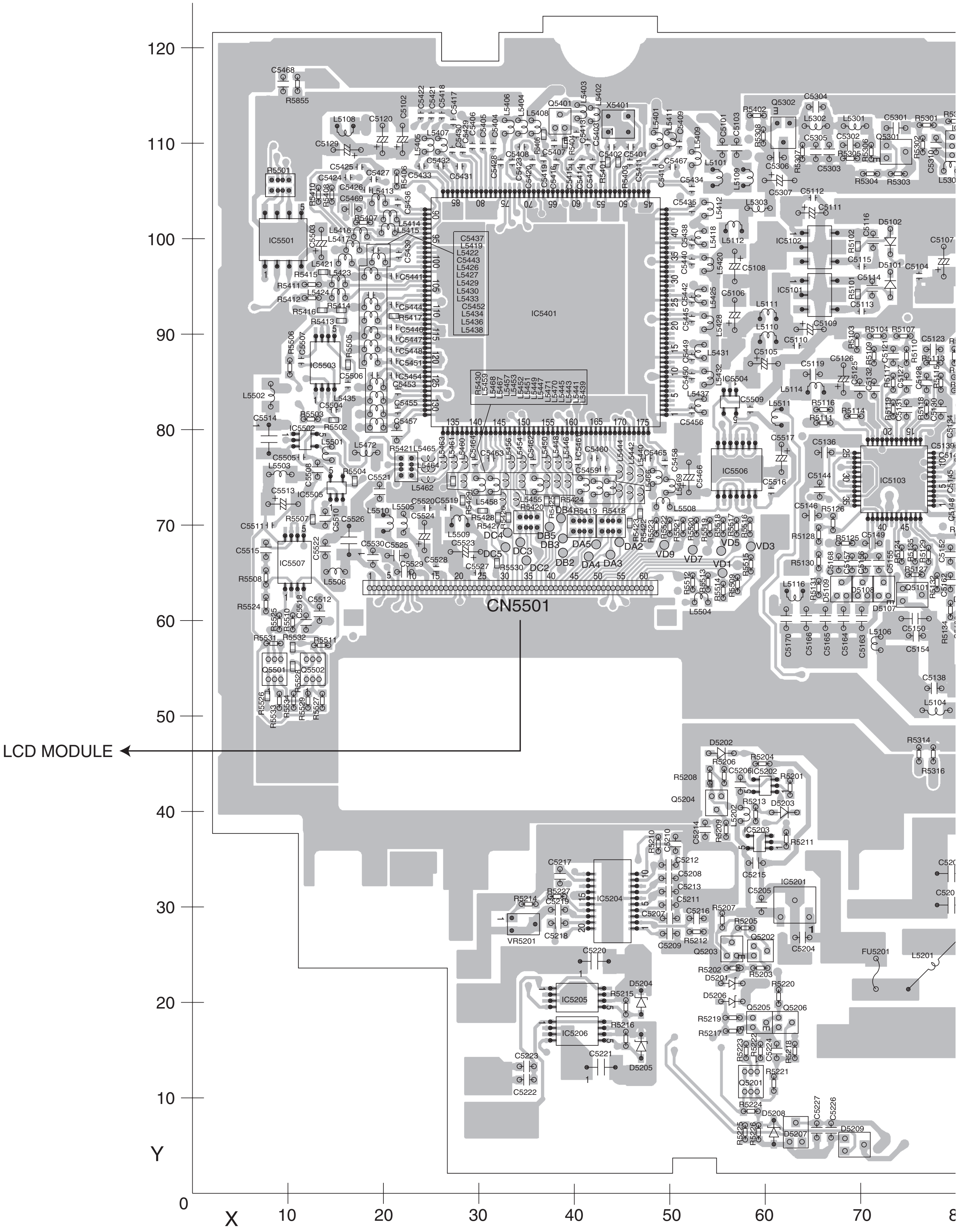
SIDE B



A CN481
CN4001
IC4001
Q4041
D4041
L4001
R4091
R4093
R4057
R4034
R4058
C4080
R4079
R4033
R4080
R4077
R4078
R4056
C4078
R4037
R4094
R4092
R4036
R4055
R4075
R4076
R4006
C4022
R4001
R4002
C4021
R4042
R4022
R4021
C4041
C4023
C4002
C4003
C4005
C4001
C4004
R4003
R4004
R4005
R4032
R4031
R4035
C4073
R4054
R4051
R4052
R4074
R4053
C4071
R4072
R4073
C4074
R4071
C4072
1
5
10
15
20
25
30
35
40
45
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
X
0
10
20
Y

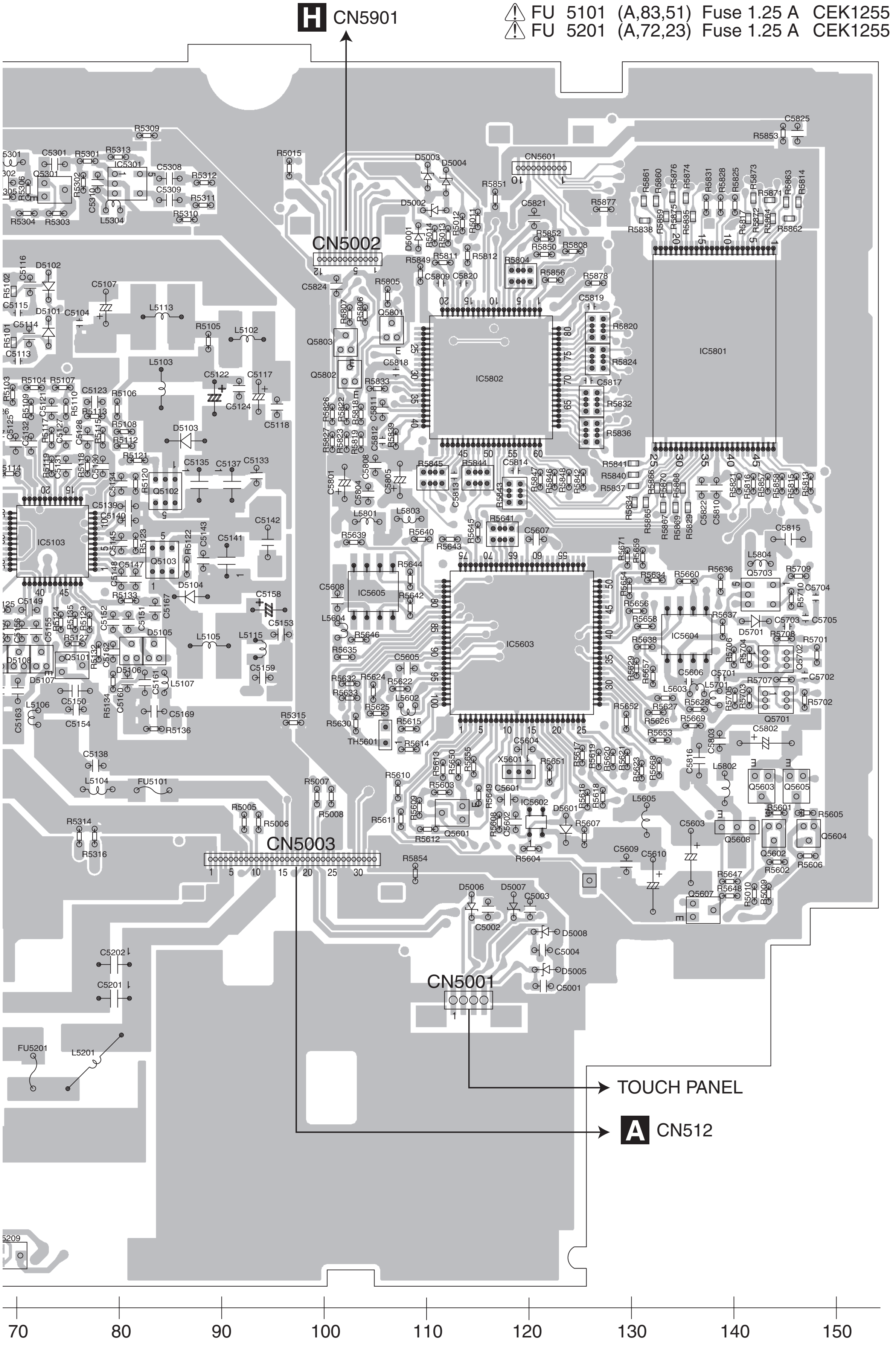
11.3 MONITOR PCB

C MONITOR PCB


LCD MODULE
CN5501
IC5401
IC5501
IC5502
IC5503
IC5505
IC5506
IC5507
IC5101
IC5102
IC5103
IC5504
IC5201
IC5202
IC5203
IC5204
IC5205
IC5206
X5401
Q5401
Q5301
Q5302
Q5501
Q5502
Q5201
Q5202
Q5203
Q5204
Q5205
Q5206
VR5201
FU5201
L5201
Y
X
0
10
20
30
40
50
60
70
80
90
100
110
120

SIDE A

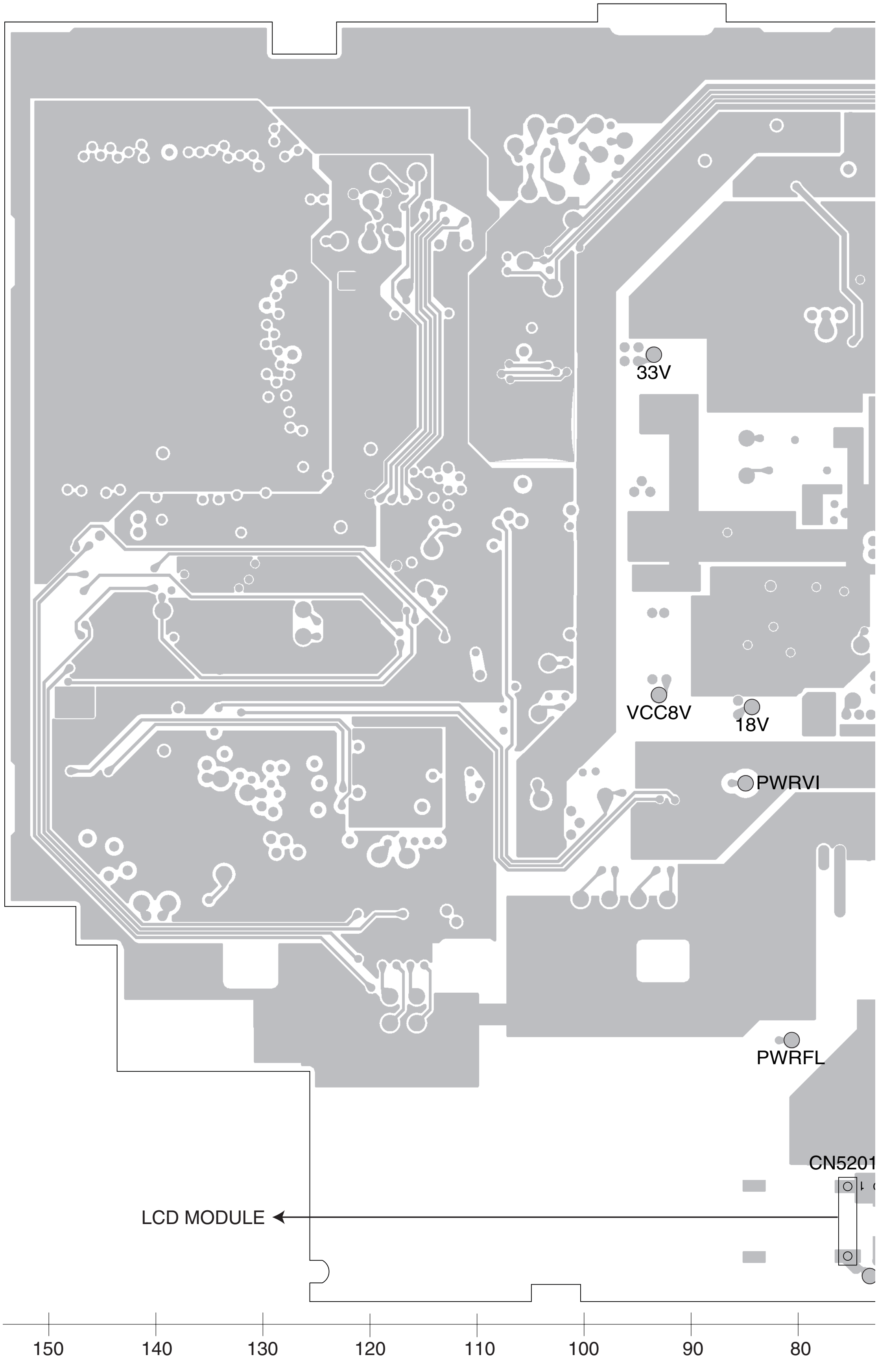
⚠ FU 5101 (A,83,51) Fuse 1.25 A CEK1255
⚠ FU 5201 (A,72,23) Fuse 1.25 A CEK1255


H CN5901
CN5002
CN5601
IC5801
IC5802
IC5603
IC5604
IC5605
IC5103
IC5301
CN5003
CN5001
TOUCH PANEL
A CN512
FU5101
FU5201
L5201
70
80
90
100
110
120
130
140
150

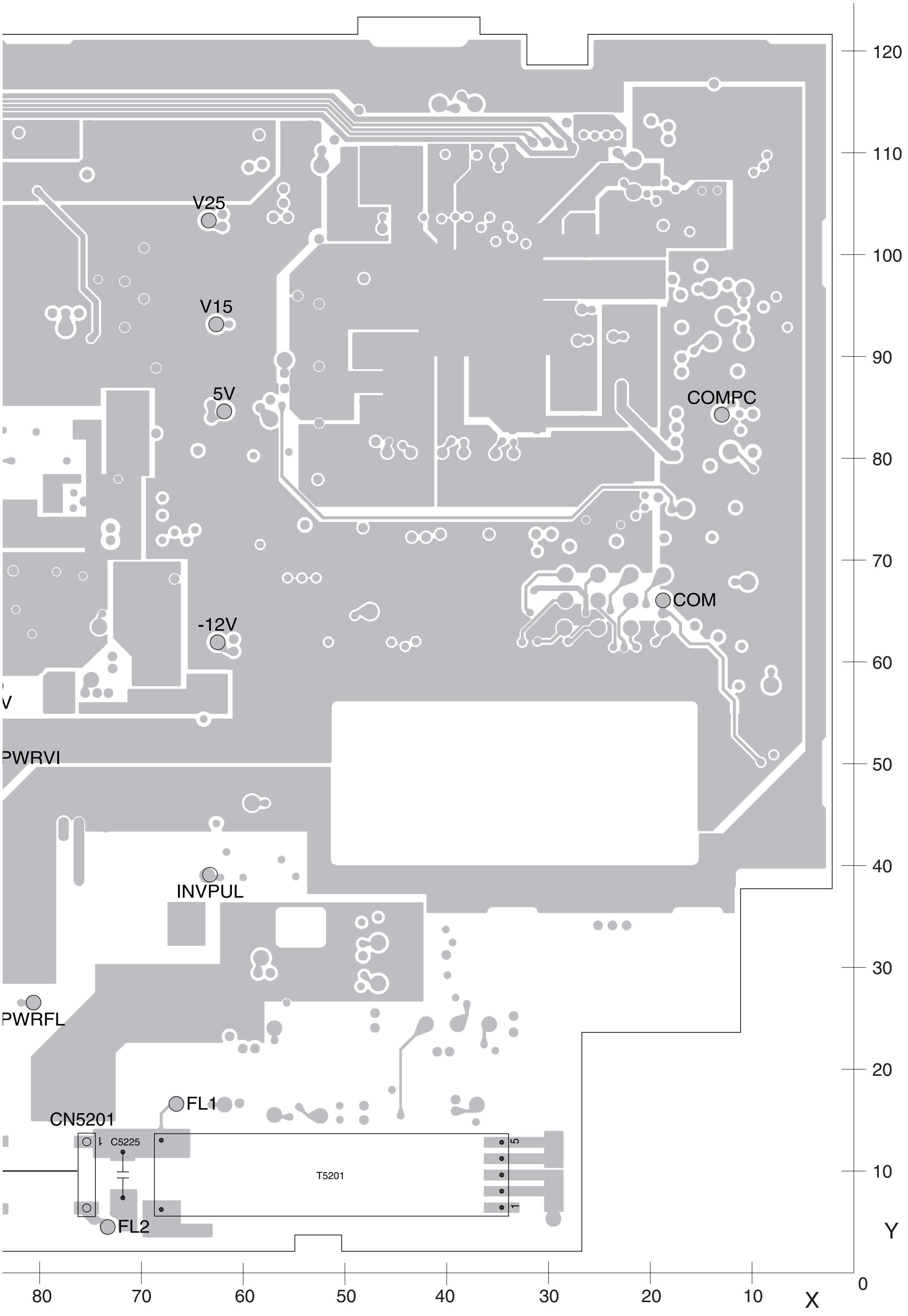
A
B
C
D
E
F

C

C MONITOR PCB


33V
VCC8V
18V
PWRVI
PWRFL
CN5201
LCD MODULE
150
140
130
120
110
100
90
80

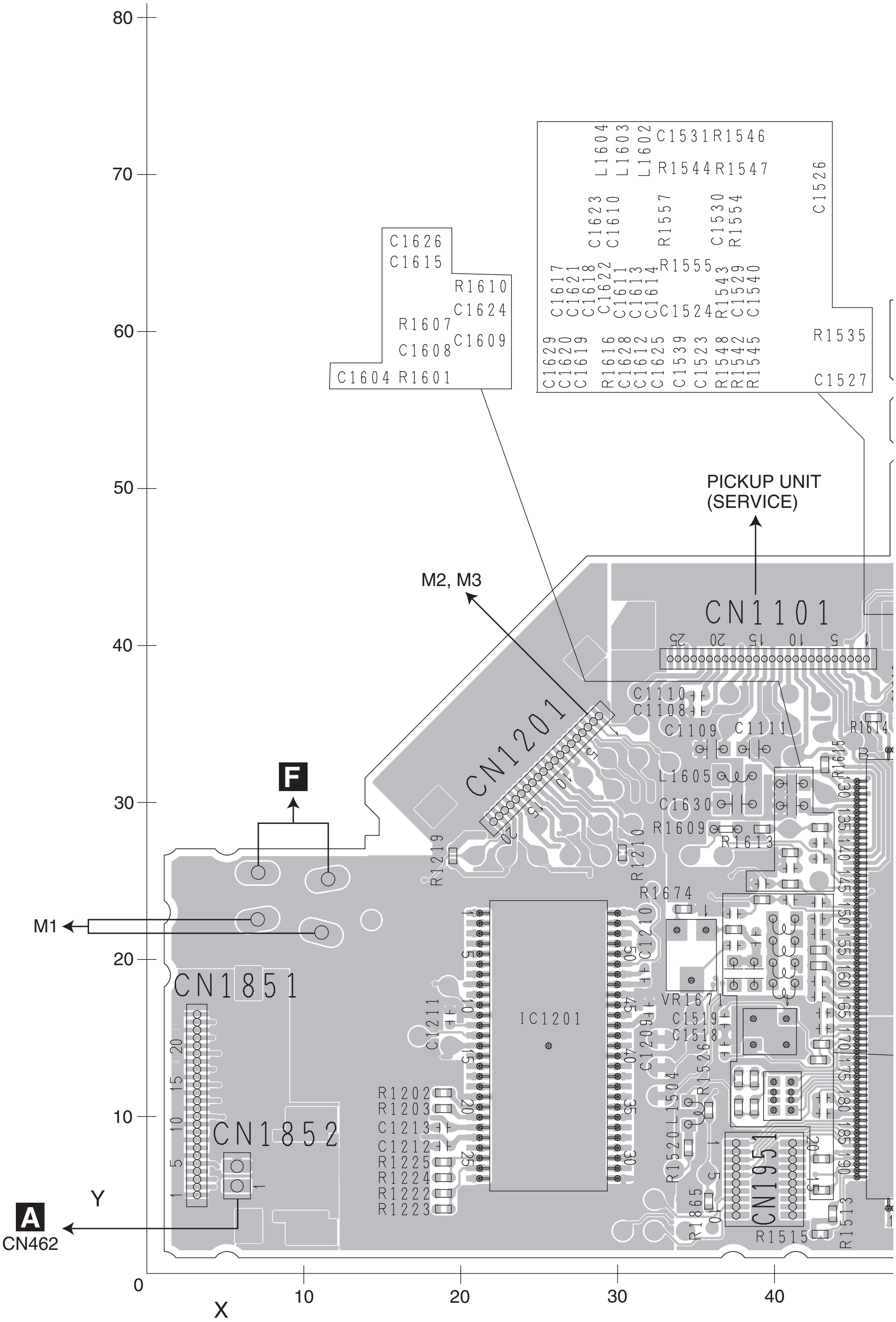
SIDE B


V25
V15
5V
COMPC
COM
-12V
V
PWRVI
INVPUL
PWRFL
FL1
CN5201
C5225
T5201
5
1
FL2
120
110
100
90
80
70
60
50
40
30
20
10
Y
0
80
70
60
50
40
30
20
10
X

C

11.4 DVD CORE UNIT

D DVD CORE UNIT


80
70
60
50
40
30
20
10
0
10
20
30
40
X
Y
C1626
C1615
R1610
C1624
R1607
C1609
C1608
C1604 R1601
L1604
L1603
L1602
C1531 R1546
R1544 R1547
C1526
C1623
C1610
R1557
C1530
R1554
C1617
C1621
C1618
C1622
C1611
C1613
C1614
R1555
R1543
C1529
C1540
C1524
C1629
C1620
C1619
R1616
C1628
C1612
C1625
C1539
C1523
R1548
R1542
R1545
R1535
C1527
PICKUP UNIT
(SERVICE)
M2, M3
CN1101
CN1201
C1110
C1108
C1109
C1111
L1605
C1630
R1609
R1613
R1614
R1615
R1219
R1210
R1674
C1210
VR1671
C1519
C1518
C1209
R1526
L1504
R1520
F
M1
CN1851
CN1852
IC1201
C1211
R1202
R1203
C1213
C1212
R1225
R1224
R1222
R1223
CN1951
R1865
R1515
R1513
A
CN462

D

SIDE A

A

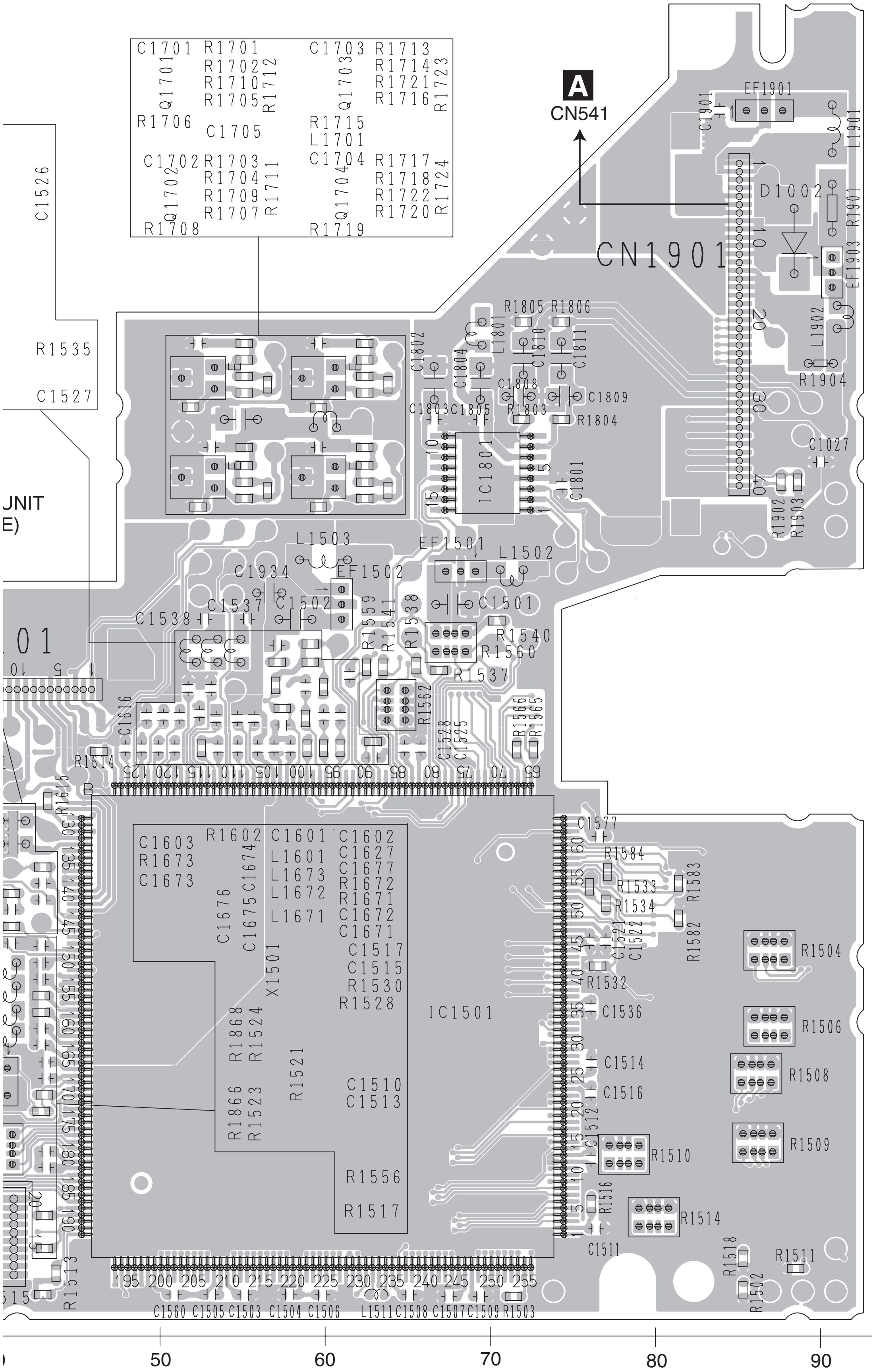
B

C

D

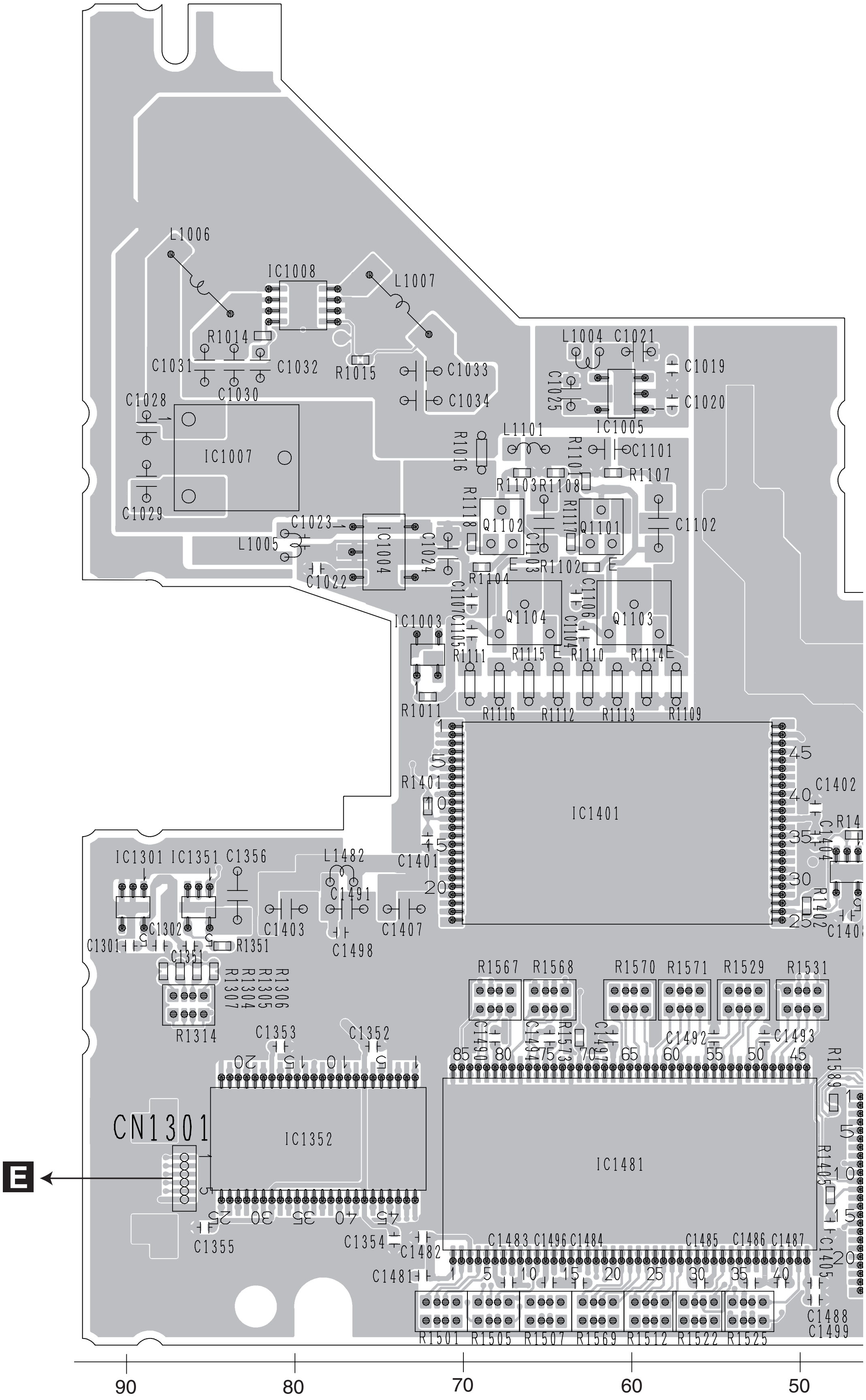
E

F

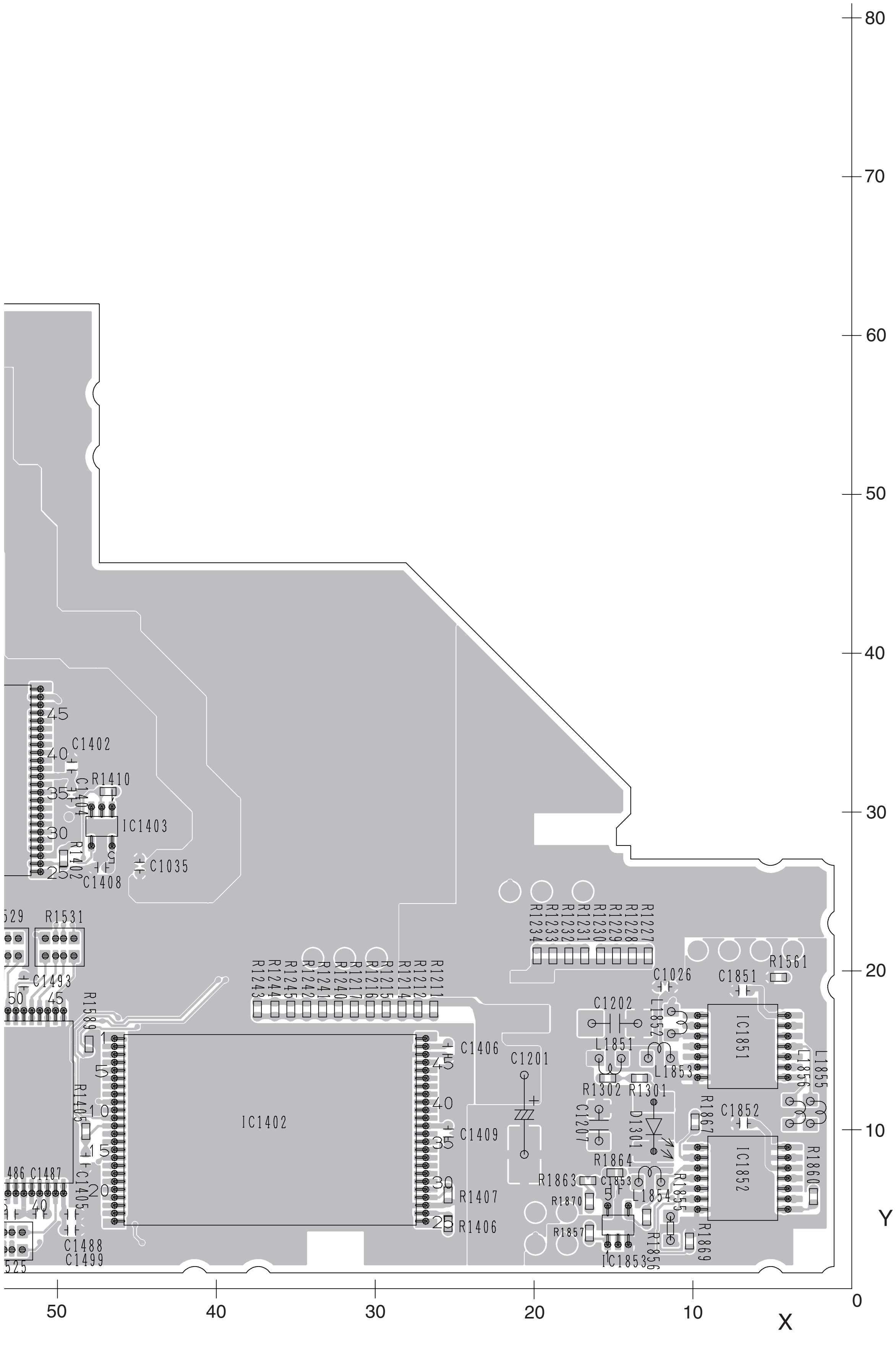

A
CN541
CN1901
EF1901
C1901
L1901
D1002
R1901
EF1903
L1902
R1904
C1027
R1902
R1903
C1701 R1701 R1702 R1710 R1705 R1712 Q1701
C1703 R1713 R1714 R1721 R1716 R1723 Q1703
R1706 C1705 R1715 L1701
C1702 R1703 R1704 R1709 R1707 R1711 Q1702 R1708
C1704 R1717 R1718 R1722 R1720 R1724 Q1704 R1719
C1526
R1535
C1527
UNIT
E)
R1805 R1806
L1801
C1802 C1804 C1810 C1811
C1808 C1809
C1803 C1805 R1803 R1804
IC1801
C1801
L1503
EF1501
L1502
C1934
EF1502
C1537 C1502
C1538
C1501
R1559 R1541 R1538
R1540
R1560
R1537
R1562
01
C1616
R1614
R1615
C1528 C1525
R1566 R1565
C1577
R1584
R1533
R1583
R1534
C1521 C1522
R1582
R1532
C1536
C1514
C1516
C1512
R1516
C1511
C1603 R1673 C1673
R1602 C1674
C1676 C1675
C1601 L1601 L1673 L1672 L1671
C1602 C1627 C1677 R1672 R1671 C1672 C1671 C1517 C1515 R1530 R1528
X1501
R1868 R1524
R1521
IC1501
R1866 R1523
C1510 C1513
R1556
R1517
R1504
R1506
R1508
R1509
R1510
R1514
R1518
R1511
R1502
R1513
C1560 C1505 C1503 C1504 C1506 L1511 C1508 C1507 C1509 R1503
50
60
70
80
90

D

D DVD CORE UNIT

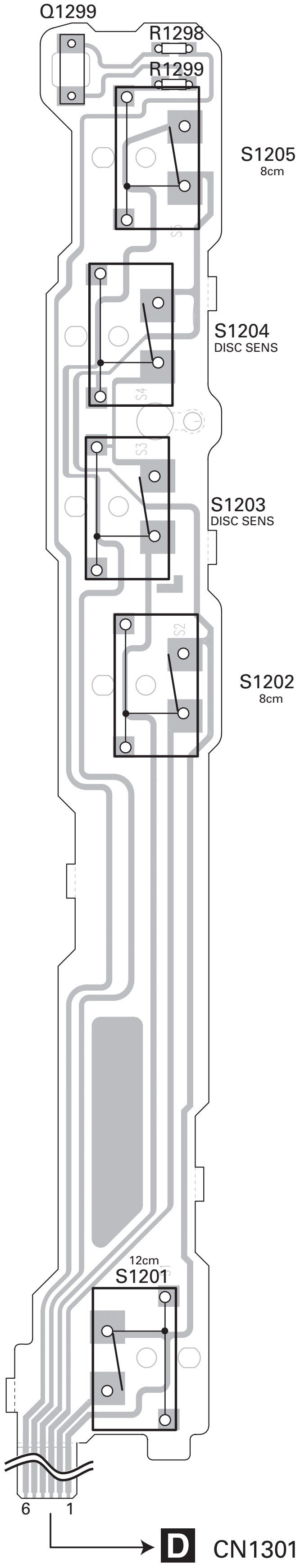

L1006
IC1008
L1007
R1014
C1031
C1032
C1030
R1015
C1033
C1034
C1028
IC1007
C1029
L1004
C1021
C1019
C1025
IC1005
C1020
L1101
R1016
R1101
C1101
R1103
R1108
R1107
R1118
R1117
Q1102
C1103
Q1101
C1102
C1023
L1005
IC1004
C1024
C1022
R1104
R1102
C1106
C1107
C1105
Q1104
Q1103
C1104
IC1003
R1111
R1115
R1110
R1114
R1011
R1116
R1112
R1113
R1109
IC1401
R1401
C1402
C1401
C1404
R1402
C1403
IC1301
IC1351
C1356
L1482
C1491
C1301
C1302
C1351
R1351
C1403
C1498
C1407
R1304
R1305
R1306
R1307
R1314
C1353
C1352
R1567
R1568
R1570
R1571
R1529
R1531
C1490
C1494
R1573
C1497
C1492
C1493
R1589
CN1301
IC1352
IC1481
R1405
C1355
C1354
C1482
C1481
C1483
C1496
C1484
C1485
C1486
C1487
C1405
C1488
C1499
R1501
R1505
R1507
R1569
R1512
R1522
R1525
E
90
80
70
60
50

SIDE B

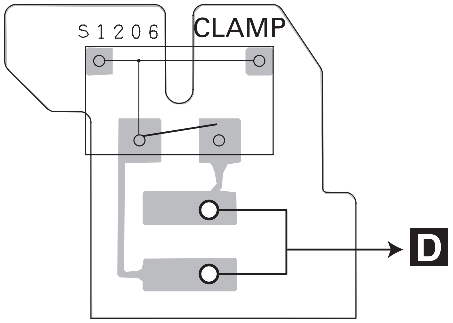

80
70
60
50
40
30
20
10
Y
0
X
50
40
30
20
10
C1402
R1410
C1404
IC1403
R1402
C1408
C1035
45
40
35
30
25
529
R1531
C1493
50
45
R1589
R1405
C1405
486 C1487
40
C1488
C1499
525
IC1402
1
5
10
15
20
45
40
35
30
25
C1406
C1409
R1407
R1406
R1211
R1212
R1214
R1215
R1216
R1217
R1240
R1241
R1242
R1245
R1244
R1243
R1227
R1228
R1229
R1230
R1231
R1232
R1233
R1234
C1201
C1202
C1207
R1302
R1301
D1301
L1851
L1852
L1853
C1026
C1851
R1561
IC1851
L1855
L1856
C1852
R1867
IC1852
R1860
R1864
C1853
R1863
R1870
R1857
L1854
R1855
R1856
R1869
IC1853

11.5 COMPOUND UNIT(A) AND COMPOUND UNIT(B)

E COMPOUND UNIT(A)


Q1299
R1298
R1299
S1205
8cm
S1204
DISC SENS
S1203
DISC SENS
S1202
8cm
12cm
S1201
6
1
D
CN1301

F COMPOUND UNIT(B)

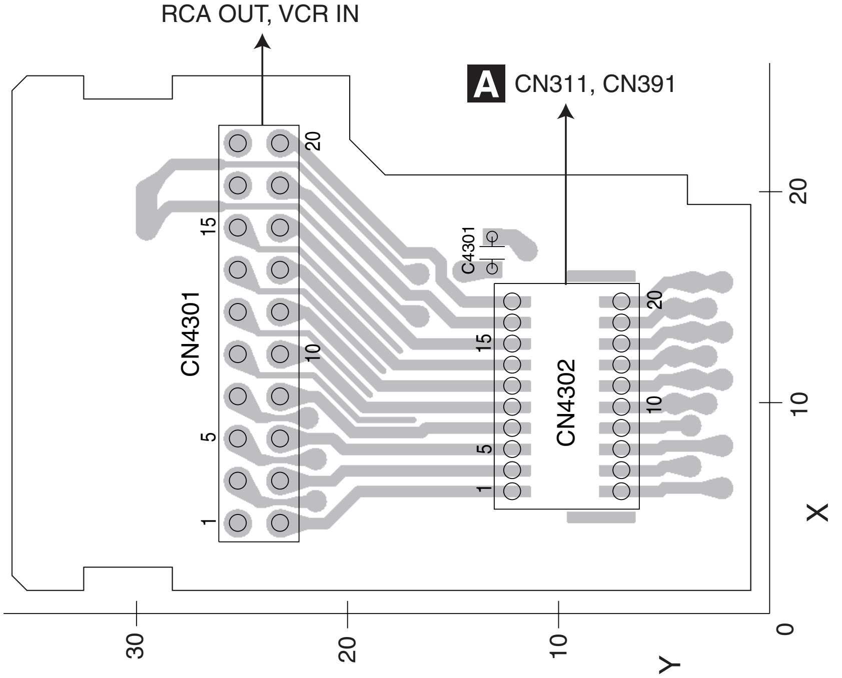

S1206
CLAMP
D

E F

11.6 RCA PCB

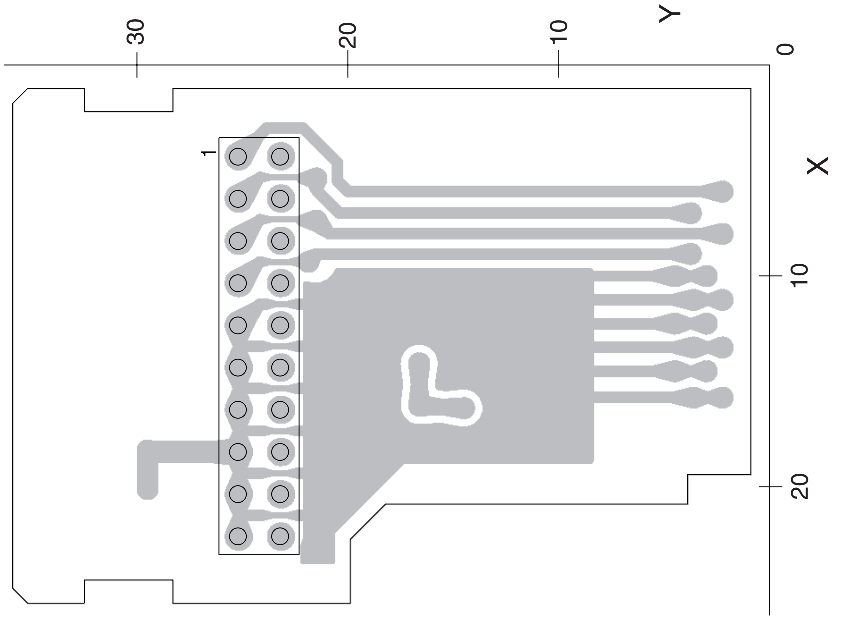
G RCA PCB

SIDE A

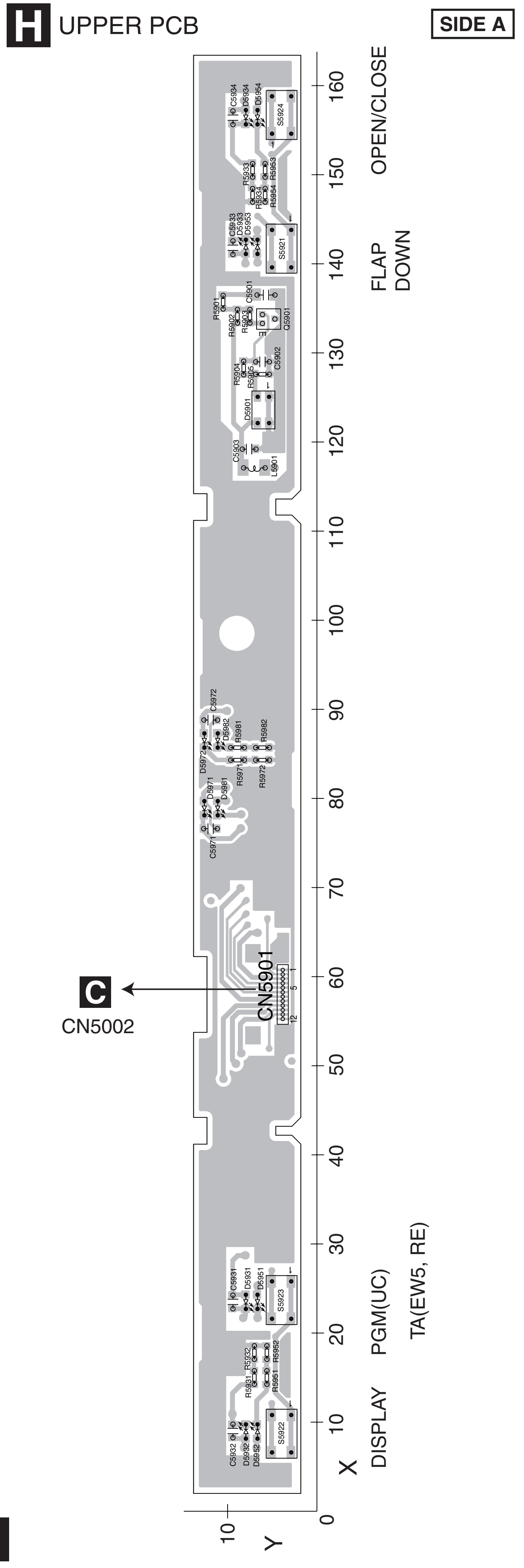

RCA OUT, VCR IN
A CN311, CN391
CN4301
1
5
10
15
20
C4301
CN4302
1
5
10
15
20
20
10
X
30
20
10
Y
0

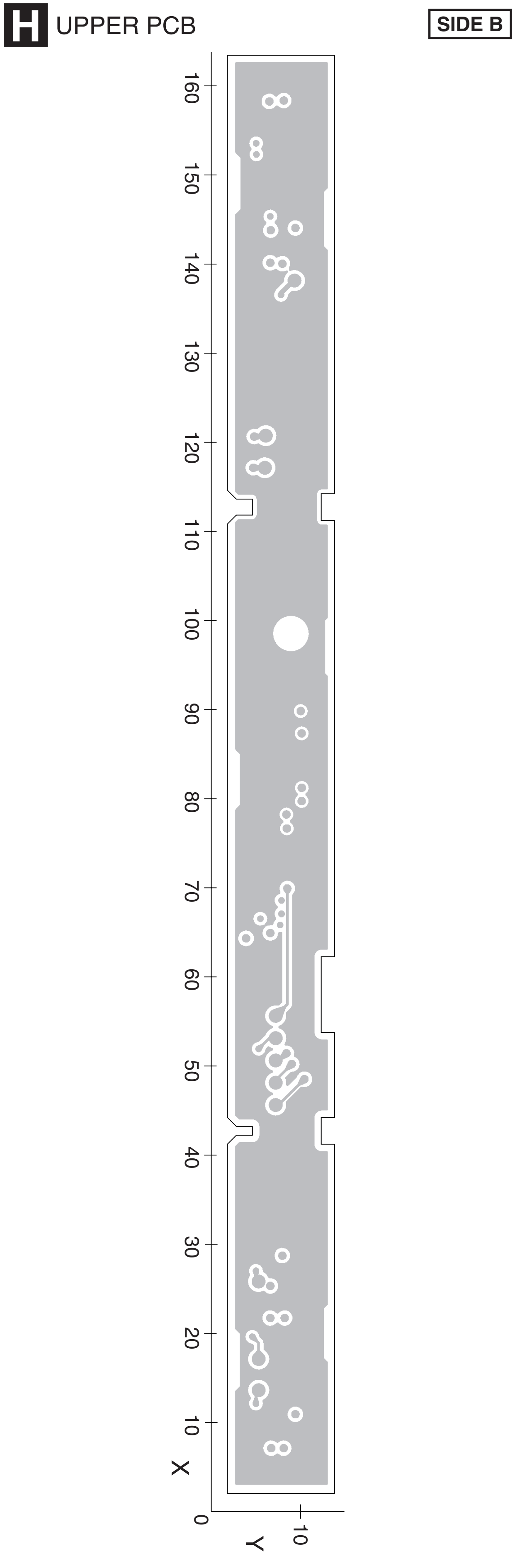
G RCA PCB

SIDE B


30
20
10
Y
0
X
1
10
20

11.7 UPPER PCB

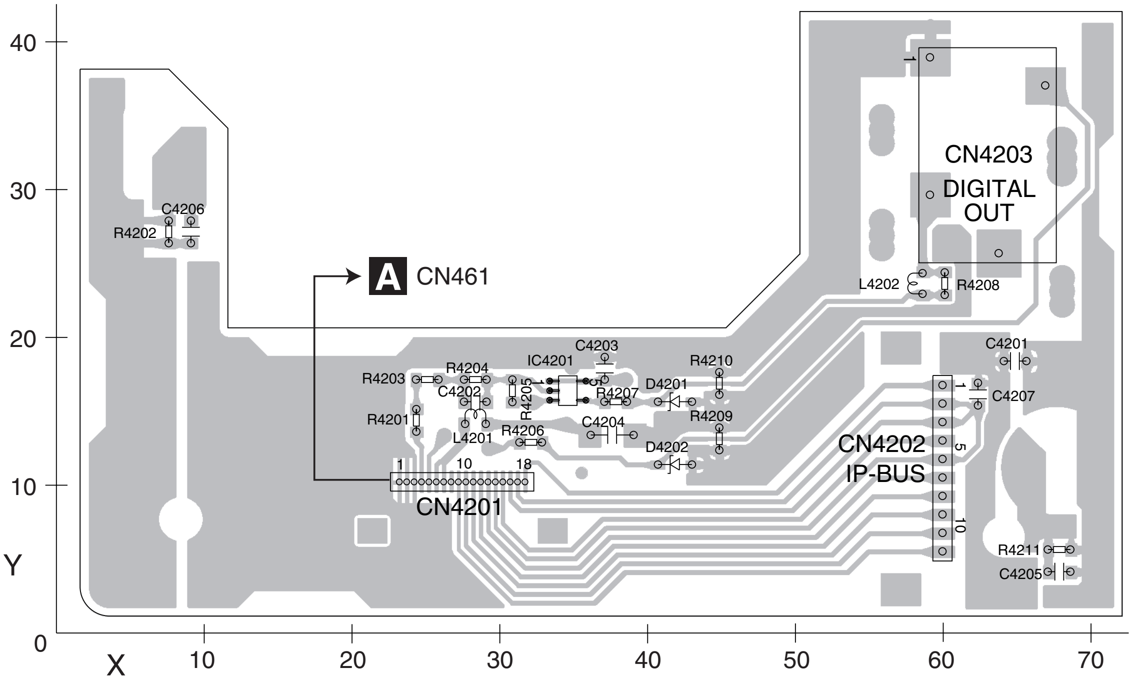

H
UPPER PCB
SIDE A
OPEN/CLOSE
FLAP
DOWN
PGM(UC)
TA(EW5, RE)
DISPLAY
C5934
D5934
D5954
S5924
R5933
R5953
R5934
R5954
C5933
D5933
D5953
S5921
R5901
C5901
R5902
R5903
Q5901
R5904
R5905
C5902
D5901
C5903
L5901
C5972
D5982
R5981
R5982
D5972
D5971
D5981
R5971
R5972
C5971
CN5901
C
CN5002
C5931
D5931
D5951
S5923
R5931
R5932
R5951
R5952
C5932
D5932
D5952
S5922
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
X
Y
10


H
UPPER PCB
SIDE B
160
150
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
X
Y
10

11.8 OPT PCB

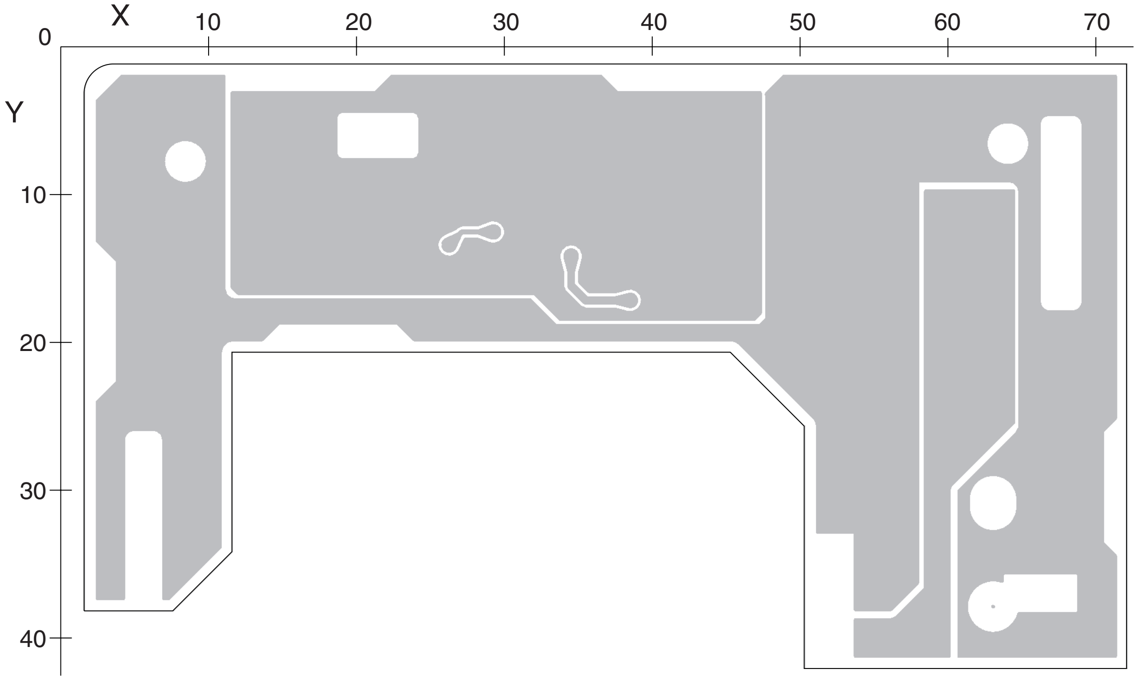
I OPT PCB

SIDE A


40
30
20
10
0
Y
X
10
20
30
40
50
60
70
C4206
R4202
A CN461
R4203
R4204
C4202
R4201
L4201
R4205
IC4201
C4203
R4206
R4207
C4204
D4201
D4202
R4210
R4209
1
10
18
CN4201
1
CN4203
DIGITAL
OUT
L4202
R4208
C4201
C4207
1
5
10
CN4202
IP-BUS
R4211
C4205

I OPT PCB

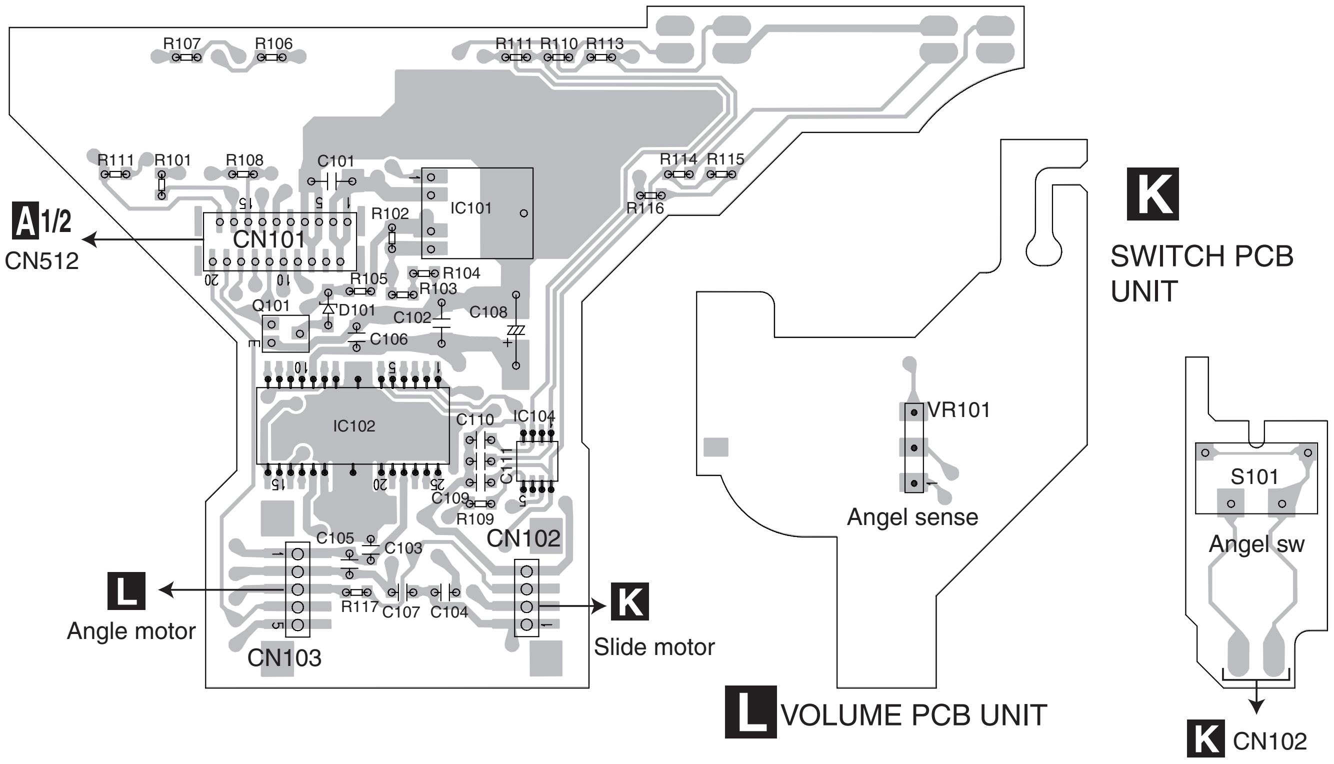
SIDE B


X
10
20
30
40
50
60
70
0
Y
10
20
30
40

11.9 MAIN PCB UNITSERVICE), SWITCH PCB UNIT AND VOLUME PCB UNIT

J MAIN PCB UNIT(SERVICE)

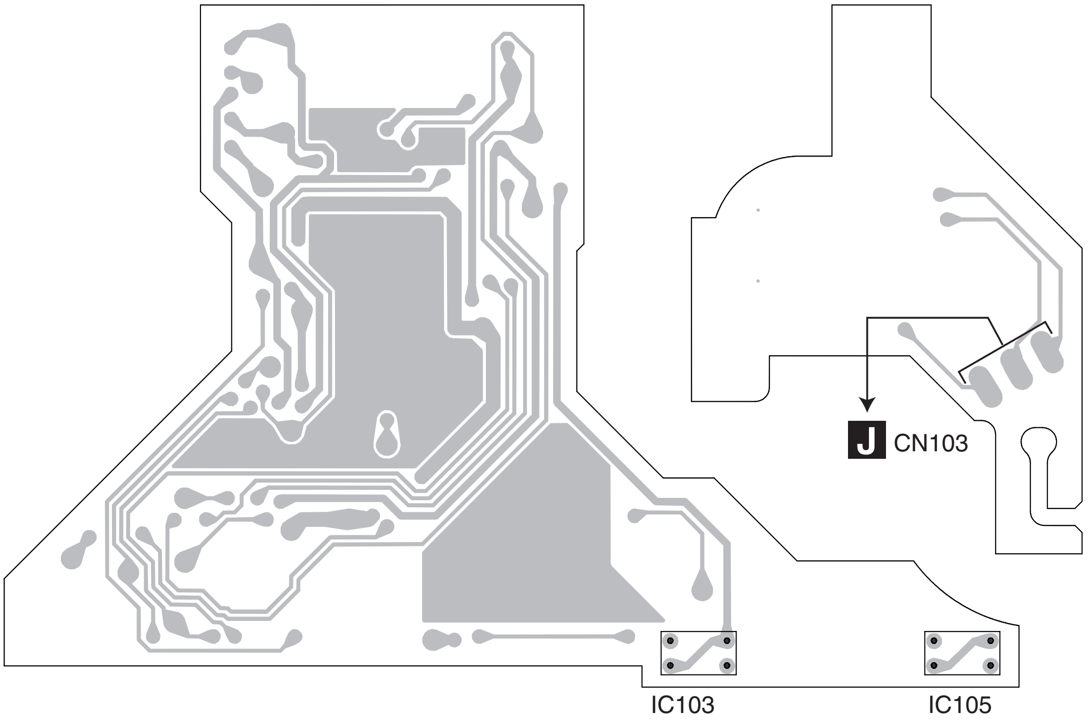
SIDE A


R107
R106
R111
R110
R113
R111
R101
R108
C101
R114
R115
R116
IC101
R102
A1/2
CN512
CN101
15
1
20
10
R105
R104
R103
Q101
E
D101
C102
C108
C106
10
5
1
IC102
C110
IC104
C111
15
20
25
C109
R109
5
C105
C103
CN102
L
Angle motor
R117
C107
C104
K
Slide motor
CN103
K
SWITCH PCB UNIT
VR101
Angel sense
S101
Angel sw
L
VOLUME PCB UNIT
K CN102

SIDE B

J MAIN PCB UNIT(SERVICE)

L VOLUME PCB UNIT


J CN103
IC103
IC105

J K L

12. ELECTRICAL PARTS LIST

NOTE:

- *Parts whose parts numbers are omitted are subject to being not supplied.*
- *The part numbers shown below indicate chip components.*
  Chip Resistor
  RS1/○S○○○J,RS1/○○S○○○J
  Chip Capacitor (except for CQS.....)
  CKS....., CCS....., CSZS.....
- *The ⚠ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.*
- *Meaning of the figures and others in the parentheses in the parts list.*
  Example) IC 301 is on the point (face A, 91 of x-axis, and 111 of y-axis) of the corresponding PC board.
  IC 301 (A, 91, 111) IC NJM2068V

Unit Number : (UC,EW5,RE)
Unit Name : Mother Unit
Unit Number :
Unit Name : Keyboard Unit
Unit Number : CWN2330
Unit Name : Monitor Unit
Unit Number : YWX5005
Unit Name : DVD Core Unit
Unit Number : CWX3154
Unit Name : Compound Unit(A)
Unit Number : CWX3394
Unit Name : Compound Unit(B)
Unit Number :
Unit Name : OPT/RCA Unit
Unit Number : CXX2316
Unit Name : Main PCB Unit(SERVICE)
Unit Number : CZW5029
Unit Name : Switch PCB Unit
Unit Number : CZW5028
Unit Name : Volume PCB Unit

A

Unit Number : (UC,EW5,RE)
Unit Name : Mother Unit

MISCELLANEOUS

Circuit Symbol and No.			Part No.
IC 101	(B,62,15)	IC	NJM2794RB2
IC 111	(A,87,38)	IC	NJM2136V
IC 131	(B,53,15)	IC	NJM2794RB2
IC 141	(B,78,40)	IC	NJM2136V
IC 151	(A,51,19)	IC	NJM2794RB2
IC 161	(B,28,36)	IC	NJM2136V
IC 181	(B,32,45)	IC	NJM2136V
IC 191	(B,26,54)	IC	NJM2136V
IC 192	(B,29,61)	IC	SM5304AV
IC 221	(A,84,21)	IC	NJM2233BM
IC 231	(B,87,40)	IC	NJM2136V
IC 241	(B,61,40)	IC	AN15883A
IC 251	(A,74,51)	IC	NJM2136V
IC 252	(B,66,55)	IC	BA7623F
IC 281	(B,51,78)	IC	PML017A
IC 331	(A,36,132)	IC	PAL007C
IC 351	(A,109,69)	IC	TC7WH08FU
IC 401	(B,104,138)	IC	NJM2794RB2
IC 461	(A,124,90)	IC	HA12241FP
IC 601	(B,119,47)	IC(UC)	PE5597A
	(B,119,47)	IC(RE,EW5)	PE5598A
IC 731	(A,94,24)	IC	S-80827CNNB-B8M
IC 732	(A,98,31)	L-MOS And Gate	TC7SET08FUS1
IC 801	(B,154,24)	IC	BA00DD0WHFP
IC 811	(B,125,129)	IC	NJM2391DL1-33
IC 812	(B,112,126)	IC	BA00DD0WHFP
IC 821	(B,152,49)	IC	BA00DD0WHFP
IC 831	(B,145,36)	IC	S-812C56AUA-C3K
IC 832	(A,145,35)	IC	LT3461AES6
IC 841	(B,136,88)	IC	S-812C33AUA-C2N
IC 851	(B,142,54)	IC	S-812C50AUA-C3E
IC 852	(B,140,69)	Regulator	BA00CC0WFP
IC 861	(B,134,20)	IC	BA00DD0WHFP
IC 971	(B,21,16)	IC	AN8011S
Q 111	(A,89,32)	Transistor	2SC4081
Q 141	(B,77,34)	Transistor	2SC4081
Q 161	(B,22,38)	Transistor	2SC4081
Q 181	(B,25,45)	Transistor	2SC4081
Q 191	(B,20,55)	Transistor	2SC4081
Q 231	(B,87,34)	Transistor	2SC4081
Q 251	(A,67,42)	Transistor	2SC4081
Q 271	(A,67,37)	Transistor	2SC4081
Q 272	(A,70,37)	Chip Transistor	2SA1576A
Q 311	(A,32,85)	Transistor	IMH23
Q 312	(A,32,74)	Transistor	IMH23
Q 313	(A,32,80)	Transistor	IMH23

Circuit Symbol and No.			Part No.
Q 331	(B,54,101)	Transistor	IMD3A
Q 351	(B,81,102)	Chip Transistor	DTC124EUA
Q 352	(B,84,101)	Chip Transistor	DTC124EUA
Q 353	(B,92,100)	Chip Digital Transistor	DTA124EUA
Q 354	(B,92,106)	Chip Digital Transistor	DTA124EUA
Q 355	(B,88,100)	Digital Transistor	DTC144EUA
Q 356	(B,83,62)	Transistor	IMD2A
Q 357	(B,83,118)	Transistor	IMH23
Q 401	(B,118,109)	Transistor(RE,EW5)	UMH1N
Q 402	(B,124,109)	Transistor(RE,EW5)	UMH1N
Q 461	(A,135,94)	Transistor	UMF23N
Q 501	(A,110,11)	Chip Transistor	DTA114EUA
Q 502	(A,108,17)	Digital Transistor	DTC144EUA
Q 503	(A,116,19)	Transistor	2SC4081
Q 521	(A,124,20)	Transistor	IMD3A
Q 522	(A,127,20)	Transistor	IMD3A
Q 523	(A,131,20)	Transistor	IMD3A
Q 541	(B,55,60)	Transistor	UMD3N
Q 542	(B,51,54)	Transistor	IMH23
Q 731	(A,101,24)	Transistor	2SC4081
Q 741	(B,25,113)	Transistor	IMD2A
Q 742	(B,51,112)	Chip Transistor	DTC124EUA
Q 743	(B,47,114)	Transistor	2SC4081
Q 744	(B,48,118)	Digital Transistor	DTC144EUA
Q 761	(B,70,105)	Chip Transistor	2SA1576A
Q 762	(B,54,109)	Chip Transistor	DTC114EUA
Q 763	(B,64,104)	Chip Transistor	2SA1576A
Q 765	(B,60,109)	Transistor	UMX1N
Q 766	(B,77,103)	Transistor	2SC4081
Q 781	(A,117,12)	Transistor	2SA1577
Q 782	(A,120,7)	Digital Transistor	DTC144EUA
Q 783	(A,125,12)	Transistor	2SA1577
Q 784	(A,127,7)	Digital Transistor	DTC144EUA
Q 801	(B,143,23)	Transistor	2SD1767
Q 802	(A,144,46)	Transistor	IMD3A
Q 803	(A,150,46)	Transistor	IMD3A
Q 804	(A,155,46)	Transistor	IMD3A
Q 831	(B,157,36)	Transistor	2SD1767
Q 832	(A,157,35)	Transistor	UMD3N
Q 841	(B,142,85)	Transistor	2SB1184F5
Q 842	(B,156,76)	Transistor	2SD1767
Q 851	(B,154,61)	Transistor	2SB1184F5
Q 853	(A,139,74)	Transistor	UMF23N
Q 871	(B,155,95)	Transistor	2SA2060
Q 872	(A,159,92)	Transistor	2SC4081
Q 873	(B,161,95)	Chip Transistor	2SA1576A
Q 874	(A,155,94)	Chip Transistor	DTC114EUA
Q 875	(A,160,98)	Transistor	2SA2060
Q 891	(B,139,8)	Chip Transistor	DTC114EUA
Q 892	(B,148,8)	Transistor	2SB1189
Q 901	(B,15,85)	Chip Transistor	DTC114EUA
Q 902	(B,11,102)	Transistor	2SA1615-ZS1
Q 911	(A,139,86)	Transistor	UMF23N
Q 921	(A,130,68)	Transistor	UMF23N
Q 931	(A,130,63)	Transistor	UMF23N
Q 941	(A,139,80)	Transistor	UMF23N
Q 951	(B,15,121)	Transistor	2SD1760F5
Q 952	(B,25,105)	Digital Transistor	DTC114EUA
Q 953	(B,25,107)	Digital Transistor	DTC114EUA
Q 954	(B,20,115)	Transistor	UMF5N

Circuit Symbol and No.			Part No.
Q 961	(B,154,85)	Transistor	2SD1760F5
Q 962	(A,149,83)	Digital Transistor	DTC114EUA
Q 963	(A,157,87)	Transistor	UMF5N
Q 972	(A,28,24)	Transistor	2SJ529S
Q 973	(A,22,7)	Transistor	2SJ529S
Q 974	(B,21,26)	Transistor	2SC4097
Q 975	(B,19,7)	Transistor	2SC4097
Q 976	(B,28,13)	Chip Transistor	DTC124EUA
D 131	(B,76,115)	Diode	MALS068X
D 132	(B,78,118)	Diode	MALS068X
D 151	(B,49,31)	Diode	MALS068X
D 152	(B,51,33)	Diode	MALS068X
D 161	(B,40,34)	Diode	MALS068X
D 181	(B,44,38)	Diode	MALS068X
D 311	(A,36,85)	Diode	DAP202K
D 312	(A,36,74)	Diode	DAP202K
D 313	(A,36,80)	Diode	DAP202K
D 331	(A,52,124)	Diode	S1G-6904G2P
D 332	(B,66,153)	Diode	S1G-6904G2P
D 351	(B,90,117)	Diode	MALS068X
D 352	(B,86,115)	Diode	MALS068X
D 353	(B,88,117)	Diode	MALS068X
D 354	(B,88,120)	Diode	MALS068X
D 355	(B,83,130)	Diode	MALS068X
D 356	(B,79,115)	Diode	MALS068X
D 357	(B,78,121)	Diode	MALS068X
D 358	(B,82,122)	Diode	MALS068X
D 359	(B,81,130)	Diode	MALS068X
D 381	(B,78,119)	Diode	MALS068X
D 481	(B,108,27)	Diode	UMZ6R8EN
D 482	(A,95,11)	Diode	UDZS5R6(B)
D 483	(B,80,27)	Diode Network	DA204U
D 484	(B,111,20)	Diode	UMZ6R8EN
D 485	(B,105,27)	Diode Network	DA204U
D 501	(A,113,16)	Diode	1SS355
D 541	(B,54,57)	Diode	DAP202U
D 731	(A,94,29)	Diode	1SS355
D 741	(A,61,115)	Diode	RSX201L-30
D 742	(B,50,109)	Diode	DAN202U
D 743	(B,47,109)	Diode	DAN202U
D 744	(B,44,109)	Diode	1SS355
D 745	(B,43,116)	Diode	UDZS8R2(B)
D 761	(B,70,109)	Diode	DAN202U
D 762	(B,64,108)	Diode	DAN202U
D 764	(B,55,116)	Diode	1SS355
D 765	(B,57,116)	Diode	HZU7L(C3)
D 766	(B,60,115)	Diode	HZU7L(A1)
D 767	(A,85,144)	Diode	5KP24A
D 768	(B,77,108)	Diode	UDZS6R8(B)
D 801	(B,142,28)	Diode	UDZS5R6(B)
D 811	(B,115,134)	Diode	1SR154-400
D 812	(B,109,137)	Diode	1SR154-400
D 813	(B,109,134)	Diode	1SR154-400
D 814	(B,102,120)	Diode	1SR154-400
D 831	(A,156,31)	Diode	HZU5R6(B2)
D 841	(B,149,75)	Diode	1SR154-400
D 842	(B,155,72)	Diode	UDZS18(B)
D 873	(A,155,97)	Diode	UDZS16(B)
D 874	(B,139,98)	Diode	MALS068X
D 891	(A,153,10)	Diode	RSX201L-30

Circuit Symbol and No.		Part No.
D 951	(B,20,106) Diode	HZU9R1(B2)
D 952	(B,20,108) Diode	HZU6R8(B3)
D 953	(B,20,110) Diode	HZU8R2(B2)
D 961	(A,154,83) Diode	HZU7R5(B2)
D 962	(A,152,83) Diode	HZU6R8(B3)
D 972	(A,33,17) Diode	RSX201L-30
D 973	(A,33,14) Diode	RSX201L-30
D 974	(B,18,24) Diode	MA111
D 975	(B,16,8) Diode	MA111
D 976	(B,10,35) Diode	RSX201L-30
D 977	(B,13,35) Diode	RSX201L-30
ZNR401	(B,161,123) Surge Protector	IMSA-6801-01Y901
L 111	(A,84,33) Chip Ferrite Bead	CTF1399
L 141	(B,81,33) Chip Ferrite Bead	CTF1399
L 161	(B,19,43) Chip Ferrite Bead	CTF1399
L 181	(B,19,46) Chip Ferrite Bead	CTF1399
L 191	(B,15,54) Chip Ferrite Bead	CTF1399
L 192	(B,14,58) Chip Ferrite Bead	CTF1399
L 221	(A,77,25) Inductor	LCKBW100K2520
L 231	(B,93,34) Chip Ferrite Bead	CTF1399
L 241	(B,60,24) Chip Coil	LCTAW100J2520
L 242	(B,57,24) Chip Coil	LCTAW100J2520
L 251	(A,81,53) Chip Ferrite Bead	CTF1399
L 252	(A,72,70) Inductor	CTF1383
L 253	(B,72,54) Inductor	LCTAW150J2520
L 271	(A,63,38) Inductor	CTF1473
L 281	(A,61,74) Inductor	LCTAW2R2J2520
L 351	(A,111,64) Inductor	CTF1306
L 352	(B,84,125) Choke Coil 10 µH	CTH1259
L 401	(B,154,146) Inductor	LCTAW220J2520
L 402	(B,149,144) Chip Coil	LCTAW1R0J2520
L 403	(B,126,141) Inductor	CTF1379
L 404	(B,115,141) Inductor	LCTAW1R0J3225
L 461	(A,127,86) Inductor	LCTAW2R2J2520
L 462	(A,127,102) Inductor	CTF1473
L 481	(A,93,12) Chip Ferrite Bead	CTF1399
L 541	(A,43,52) Inductor	CTF1473
L 542	(A,44,50) Inductor	CTF1473
L 543	(A,43,47) Inductor	CTF1473
L 601	(A,117,49) Inductor	LCTAW2R2J2520
L 602	(A,109,37) Inductor	CTF1473
L 751	(A,133,50) Inductor	CTF1306
L 761	(B,71,113) Inductor	LCTAW2R2J2520
L 762	(B,67,112) Inductor	LCTAW2R2J2520
L 763	(B,74,111) Inductor	CTF1295
L 831	(A,149,35) Power Inductor(10U)	DTL1124
L 832	(A,152,30) Inductor	CTF1473
L 891	(A,140,18) Coil	CTH1267
L 901	(A,23,120) Inductor	CTH1262
L 971	(A,37,23) Coil	CTH1303
L 972	(A,32,8) Coil	CTH1303
L 973	(B,13,21) Chip Coil	LCTAW100J2520
L 974	(A,18,24) Inductor	CTH1254
X 601	(B,98,45) Oscillator 4.718 592 MHz	CSS1703
VR271	(A,70,32) Semi-fixed 1 KΩ(OB)	CCP1390
VR971	(A,28,16) Semi-fixed 10 kΩ(B)	CCP1396
⚠FU311	(B,18,74) Fuse 3.15 A	CEK1259
⚠FU351	(B,85,144) Fuse 3.15 A	CEK1259
⚠FU352	(B,79,144) Fuse 3.15 A	CEK1259
⚠FU521	(A,23,92) Fuse 2 A	CEK1257

Circuit Symbol and No.		Part No.
⚠FU522	(A,19,91) Fuse 200 mA	CEK1247
⚠FU523	(A,16,91) Fuse 200 mA	CEK1247
⚠FU761	(B,68,146) Fuse 3.15 A	CEK1259
⚠FU891	(B,147,12) Fuse 1.25 A	CEK1255
⚠FU901	(B,8,92) Fuse 1.25 A	CEK1255
⚠FU951	(B,13,113) Fuse 630 mA	CEK1252
⚠FU961	(A,134,86) Fuse 630 mA	CEK1252
⚠FU971	(A,39,5) Fuse 2 A	CEK1257
⚠FU972	(A,43,24) Fuse 2 A	CEK1257
⚠FU973	(A,15,30) Fuse 2 A	CEK1257
BZ601	(A,84,10) Buzzer	CPV1063

RESISTORS

R 101	(B,59,11)	RS1/16S223J
R 102	(B,64,11)	RS1/16S223J
R 105	(B,50,41)	RS1/16S0R0J
R 106	(B,50,43)	RS1/16S0R0J
R 112	(A,88,46)	RS1/16S472J
R 113	(A,85,46)	RS1/16S472J
R 114	(A,90,40)	RS1/16S101J
R 115	(A,88,44)	RS1/16S472J
R 116	(A,85,44)	RS1/16S472J
R 117	(A,84,39)	RS1/16S102J
R 118	(A,89,29)	RS1/16S272J
R 119	(A,86,29)	RS1/16S472J
R 120	(B,70,27)	RS1/16S102J
R 121	(A,77,32)	RS1/16S122J
R 131	(B,51,11)	RS1/16S223J
R 132	(B,55,11)	RS1/16S223J
R 135	(B,50,44)	RS1/16S0R0J
R 136	(B,50,46)	RS1/16S0R0J
R 137	(B,49,11)	RS1/16S0R0J
R 138	(B,55,8)	RS1/16S0R0J
R 139	(B,53,8)	RS1/16S0R0J
R 141	(A,76,123)	RS1/16S750J
R 142	(B,76,48)	RS1/16S472J
R 143	(B,79,48)	RS1/16S472J
R 144	(B,75,38)	RS1/16S101J
R 145	(B,76,46)	RS1/16S472J
R 146	(B,79,46)	RS1/16S472J
R 147	(B,82,40)	RS1/16S102J
R 148	(B,79,34)	RS1/16S272J
R 149	(B,78,31)	RS1/16S472J
R 155	(B,54,29)	RS1/16S0R0J
R 156	(B,52,29)	RS1/16S0R0J
R 161	(B,40,36)	RS1/16S750J
R 162	(B,33,38)	RS1/16S472J
R 163	(B,33,35)	RS1/16S472J
R 164	(B,25,39)	RS1/16S101J
R 165	(B,28,39)	RS1/16S472J
R 166	(B,31,34)	RS1/16S472J
R 167	(B,29,33)	RS1/16S102J
R 168	(B,22,36)	RS1/16S272J
R 169	(B,21,33)	RS1/16S472J
R 170	(B,73,27)	RS1/16S0R0J
R 181	(B,42,41)	RS1/16S750J
R 182	(B,37,47)	RS1/16S472J
R 183	(B,37,45)	RS1/16S472J

Circuit Symbol and No.		Part No.
R 184	(B,31,49)	RS1/16S472J
R 185	(B,36,43)	RS1/16S472J
R 186	(B,34,42)	RS1/16S102J
R 187	(B,28,49)	RS1/16S101J
R 188	(B,23,45)	RS1/16S272J
R 189	(B,26,42)	RS1/16S472J
R 191	(B,36,53)	RS1/16S0R0J
R 192	(B,32,55)	RS1/16S472J
R 194	(B,32,54)	RS1/16S472J
R 195	(B,25,57)	RS1/16S472J
R 196	(B,25,51)	RS1/16S472J
R 197	(B,23,58)	RS1/16S0R0J
R 198	(B,23,51)	RS1/16S102J
R 199	(B,18,55)	RS1/16S272J
R 200	(B,20,51)	RS1/16S472J
R 201	(B,19,58)	RS1/16S0R0J
R 205	(B,22,61)	RS1/16S332J
R 208	(A,52,41)	RS1/16S101J
R 209	(A,52,38)	RS1/16S102J
R 216	(B,48,54)	RS1/16S0R0J
R 217	(B,51,51)	RS1/16S0R0J
R 223	(B,79,18)	RS1/16S101J
R 224	(B,68,27)	RS1/16S0R0J
R 231	(B,85,54)	RS1/16S750J
R 232	(B,86,48)	RS1/16S472J
R 233	(B,88,48)	RS1/16S472J
R 234	(B,84,40)	RS1/16S101J
R 235	(B,86,46)	RS1/16S472J
R 236	(B,88,46)	RS1/16S472J
R 237	(B,90,40)	RS1/16S102J
R 239	(B,89,34)	RS1/16S272J
R 240	(B,90,34)	RS1/16S472J
R 241	(B,66,50)	RS1/16S221J
R 242	(B,64,50)	RS1/16S221J
R 243	(B,74,27)	RS1/16S0R0J
R 245	(B,71,27)	RS1/16S0R0J
R 251	(A,66,48)	RS1/16S472J
R 252	(A,66,45)	RS1/16S472J
R 253	(A,69,48)	RS1/16S472J
R 254	(A,67,45)	RS1/16S472J
R 255	(A,72,48)	RS1/16S102J
R 256	(A,83,42)	RS1/16S272J
R 257	(A,72,45)	RS1/16S392J
R 259	(A,81,50)	RS1/16S101J
R 260	(A,68,51)	RS1/16S101J
R 261	(B,62,56)	RS1/16S4702D
R 262	(B,62,53)	RS1/16S3302D
R 263	(A,72,68)	RS1/16S150J
R 264	(A,72,65)	RS1/16S560J
R 271	(A,63,33)	RS1/16S223J
R 272	(A,64,33)	RS1/16S303J
R 273	(A,67,34)	RS1/16S681J
R 274	(A,70,40)	RS1/16S681J
R 275	(A,67,31)	RS1/16S681J
R 276	(A,70,35)	RS1/16S272J
R 277	(A,73,39)	RS1/16S0R0J
R 278	(A,59,93)	RS1/16S0R0J
R 281	(B,33,112)	RS1/16S182J
R 282	(B,35,112)	RS1/16S182J
R 283	(B,31,115)	RS1/16S272J

Circuit Symbol and No.		Part No.
R 284	(B,35,115)	RS1/16S272J
R 285	(B,31,112)	RS1/16S182J
R 286	(B,37,112)	RS1/16S182J
R 287	(B,29,112)	RS1/16S272J
R 288	(B,38,115)	RS1/16S272J
R 289	(B,61,78)	RAB4C102J
R 290	(B,59,82)	RS1/16S473J
R 291	(B,55,90)	RS1/16S563J
R 292	(B,57,69)	RS1/16S563J
R 293	(B,52,92)	RS1/16S0R0J
R 294	(B,53,66)	RS1/16S0R0J
R 311	(B,29,86)	RS1/16S390J
R 312	(B,29,89)	RS1/16S390J
R 313	(B,27,86)	RS1/16S223J
R 314	(B,27,89)	RS1/16S223J
R 317	(B,29,74)	RS1/16S390J
R 318	(B,29,78)	RS1/16S390J
R 319	(B,27,74)	RS1/16S223J
R 320	(B,27,77)	RS1/16S223J
R 323	(B,29,80)	RS1/16S390J
R 324	(B,29,84)	RS1/16S390J
R 325	(B,27,80)	RS1/16S223J
R 326	(B,27,83)	RS1/16S223J
R 331	(B,51,104)	RS1/16S103J
R 332	(B,54,98)	RS1/16S473J
R 351	(B,92,113)	RS1/16S471J
R 352	(B,82,107)	RS1/16S514J
R 353	(B,59,8)	RS1/16S0R0J
R 354	(B,92,114)	RS1/16S471J
R 355	(B,86,60)	RS1/16S102J
R 356	(B,65,8)	RS1/16S0R0J
R 357	(B,84,105)	RS1/16S102J
R 358	(B,90,110)	RS1/16S472J
R 360	(B,62,8)	RS1/16S0R0J
R 361	(B,81,105)	RS1/16S393J
R 362	(B,84,99)	RS1/16S104J
R 363	(B,89,108)	RS1/16S472J
R 364	(B,87,108)	RS1/16S104J
R 365	(B,92,110)	RS1/16S102J
R 366	(A,110,71)	RS1/16S102J
R 367	(A,113,69)	RS1/16S102J
R 368	(B,93,110)	RS1/16S102J
R 369	(B,89,103)	RS1/16S102J
R 370	(B,92,97)	RS1/16S102J
R 371	(B,92,103)	RS1/16S102J
R 372	(B,92,116)	RS1/16S104J
R 391	(A,49,28)	RS1/16S183J
R 392	(A,53,29)	RS1/16S183J
R 393	(A,48,26)	RS1/16S223J
R 394	(A,55,30)	RS1/16S223J
R 395	(A,52,29)	RS1/16S183J
R 396	(A,52,32)	RS1/16S183J
R 397	(A,48,19)	RS1/16S223J
R 398	(A,55,28)	RS1/16S223J
R 403	(B,145,146)	RS1/16S681J
R 404	(B,144,146)	RS1/16S681J
R 405	(B,142,146)	RS1/16S681J
R 406	(B,140,146)	RS1/16S681J
R 407	(B,138,146)	RS1/16S681J
R 408	(B,137,146) (RE,EW5)	RS1/16S681J

Circuit Symbol and No.			Part No.
R 409	(B,119,147)		RS1/16S681J
R 410	(B,112,148)	(RE,EW5)	RS1/16S681J
R 411	(B,109,148)	(RE,EW5)	RS1/16S681J
R 412	(B,106,148)	(RE,EW5)	RS1/16S681J
R 413	(B,103,148)	(RE,EW5)	RS1/16S681J
R 416	(B,101,141)		RS1/16S0R0J
R 417	(B,101,145)		RS1/16S0R0J
R 421	(B,104,144)	(UC)	RS1/16S682J
	(B,104,144)	(RE,EW5)	RS1/16S103J
R 425	(B,122,106)	(RE,EW5)	RS1/16S223J
R 426	(B,118,106)	(RE,EW5)	RS1/16S223J
R 427	(B,124,106)	(RE,EW5)	RS1/16S223J
R 428	(B,120,106)	(RE,EW5)	RS1/16S223J
R 434	(B,101,143)	(UC)	RS1/16S682J
	(B,101,143)	(RE,EW5)	RS1/16S103J
R 461	(A,130,95)		RS1/16S101J
R 462	(A,128,94)		RS1/16S102J
R 463	(A,130,97)		RS1/16S150J
R 464	(A,130,98)		RS1/16S470J
R 465	(A,130,100)		RS1/16S101J
R 466	(A,133,99)		RS1/16S222J
R 467	(A,138,95)		RS1/16S332J
R 468	(A,137,97)		RS1/16S562J
R 469	(B,68,70)		RS1/16S181J
R 470	(B,65,70)		RS1/16S223J
R 471	(B,65,71)		RS1/16S102J
R 472	(B,76,75)		RS1/16S181J
R 473	(B,73,75)		RS1/16S223J
R 474	(B,68,74)		RS1/16S102J
R 475	(A,130,105)		RS1/16S0R0J
R 476	(A,116,95)		RS1/16S0R0J
R 481	(B,92,26)		RS1/16S472J
R 482	(B,98,24)		RS1/16S472J
R 483	(B,81,24)		RS1/16S102J
R 484	(B,83,26)		RS1/16S102J
R 485	(B,86,26)		RS1/16S102J
R 486	(B,87,26)		RS1/16S222J
R 487	(B,89,26)		RS1/16S102J
R 488	(B,98,22)		RS1/16S102J
R 489	(B,90,26)		RS1/16S102J
R 490	(A,88,17)		RS1/16S102J
R 491	(B,97,20)		RS1/16S102J
R 492	(B,95,20)		RS1/16S102J
R 501	(A,108,14)		RS1/16S103J
R 502	(A,111,19)		RS1/16S223J
R 503	(A,114,19)		RS1/16S473J
R 504	(A,110,14)		RS1/16S472J
R 513	(A,36,92)		RS1/16S0R0J
R 514	(A,36,91)		RS1/16S0R0J
R 515	(A,39,94)		RS1/16S102J
R 521	(A,121,18)		RS1/16S102J
R 522	(A,127,17)		RS1/16S102J
R 523	(A,131,17)		RS1/16S102J
R 531	(B,108,13)		RS1/16S0R0J
R 532	(B,108,7)		RS1/16S0R0J
R 533	(B,108,10)		RS1/16S0R0J
R 534	(A,106,29)		RS1/16S102J
R 535	(B,103,5)		RS1/16S0R0J
R 536	(B,108,12)		RS1/16S0R0J
R 537	(B,103,7)		RS1/16S0R0J
R 538	(B,108,9)		RS1/16S0R0J

Circuit Symbol and No.			Part No.
R 545	(A,41,56)		RS1/16S471J
R 546	(A,49,57)		RS1/16S102J
R 547	(A,46,56)		RS1/16S471J
R 548	(A,49,56)		RS1/16S221J
R 549	(A,52,57)		RS1/16S221J
R 550	(A,49,54)		RS1/16S221J
R 553	(B,58,60)		RS1/16S102J
R 601	(A,113,39)		RS1/16S471J
R 602	(A,113,40)		RS1/16S102J
R 603	(A,109,39)		RS1/16S0R0J
R 604	(A,112,45)		RS1/16S102J
R 605	(A,106,47)		RS1/16S0R0J
R 606	(A,106,45)		RS1/16S102J
R 607	(A,109,51)		RS1/16S471J
R 608	(A,114,52)		RS1/16S471J
R 609	(B,101,56)		RS1/16S182J
R 610	(B,102,56)		RS1/16S182J
R 611	(A,107,39)		RS1/16S473J
R 612	(A,109,45)		RS1/16S473J
R 613	(A,109,48)		RS1/16S104J
R 614	(A,106,44)		RS1/16S473J
R 615	(A,114,54)		RS1/16S102J
R 616	(A,105,50)		RS1/16S472J
R 617	(B,99,59)		RS1/16S221J
R 618	(B,101,61)		RS1/16S221J
R 619	(B,104,46)		RS1/16S222J
R 620	(A,112,26)	(RE)	RS1/16S473J
R 621	(A,112,22)	(UC)	RS1/16S473J
R 623	(A,113,22)		RS1/16S473J
R 624	(B,111,31)		RS1/16S0R0J
R 625	(B,104,62)		RS1/16S102J
R 626	(A,111,31)		RS1/16S102J
R 627	(A,130,41)		RAB4C0R0J
R 628	(A,111,35)		RS1/16S473J
R 629	(A,105,61)		RS1/16S0R0J
R 630	(A,107,65)		RS1/16S473J
R 631	(A,113,29)		RS1/16S103J
R 632	(A,107,61)		RS1/16S0R0J
R 633	(B,112,26)		RS1/16S102J
R 634	(A,102,61)		RS1/16S0R0J
R 635	(A,102,65)		RS1/16S473J
R 636	(B,115,17)		RS1/16S102J
R 637	(A,104,61)		RS1/16S0R0J
R 638	(A,105,65)		RS1/16S473J
R 639	(B,116,17)		RS1/16S102J
R 641	(A,113,35)		RS1/16S473J
R 642	(A,114,35)		RS1/16S104J
R 643	(B,116,32)		RS1/16S102J
R 644	(B,110,67)		RS1/16S471J
R 645	(A,111,59)		RS1/16S473J
R 646	(B,118,25)		RS1/16S102J
R 647	(B,117,29)		RS1/16S102J
R 648	(B,111,67)		RS1/16S471J
R 649	(B,113,67)		RS1/16S471J
R 650	(A,117,35)		RS1/16S102J
R 651	(A,119,35)		RS1/16S102J
R 652	(A,121,35)		RS1/16S104J
R 653	(B,120,25)		RS1/16S102J
R 654	(B,119,29)		RS1/16S102J
R 655	(B,119,63)		RS1/16S102J

Circuit Symbol and No.		Part No.	Circuit Symbol and No.		Part No.
R 656	(B,120,29)	RS1/16S102J	R 747	(B,44,114)	RS1/16S104J
R 657	(B,120,63)	RS1/16S102J	R 749	(B,52,119)	RS1/16S101J
R 658	(B,121,32)	RS1/16S102J	R 750	(B,39,114)	RS1/16S473J
R 659	(B,122,29)	RS1/16S102J	R 751	(B,136,51)	RS1/16S473J
R 660	(A,119,61)	RS1/16S102J	R 752	(A,137,48)	RS1/16S102J
R 661	(B,123,32)	RS1/16S102J	R 753	(A,140,48)	RS1/16S102J
R 662	(A,119,62)	RS1/16S102J	R 754	(A,141,50)	RS1/16S102J
R 663	(B,124,62)	RS1/16S221J	R 755	(A,139,57)	RS1/16S103J
R 664	(B,124,65)	RS1/16S104J	R 756	(A,141,57)	RS1/16S473J
R 665	(B,124,63)	RS1/16S221J	R 761	(A,130,49)	RS1/16S102J
R 666	(A,121,55)	RS1/16S473J	R 762	(B,69,102)	RS1/16S102J
R 667	(B,125,26)	RS1/16S102J	R 763	(B,73,107)	RS1/16S473J
R 668	(A,121,51)	RS1/16S473J	R 764	(B,70,107)	RS1/16S472J
R 669	(B,125,29)	RS1/16S102J	R 765	(B,54,113)	RS1/16S103J
R 670	(B,125,32)	RS1/16S102J	R 766	(B,67,103)	RS1/16S473J
R 671	(B,126,31)	RS1/16S102J	R 767	(B,66,102)	RS1/16S473J
R 672	(B,128,31)	RS1/16S102J	R 769	(B,56,110)	RS1/16S104J
R 673	(B,129,31)	RS1/16S102J	R 770	(B,71,116)	RS1/16S153J
R 674	(A,95,5)	RS1/16S102J	R 771	(B,67,106)	RS1/16S103J
R 675	(A,130,35)	RS1/16S473J	R 772	(B,58,113)	RS1/16S473J
R 676	(A,132,35)	RS1/16S473J	R 773	(B,61,112)	RS1/16S103J
R 677	(B,136,50)	RS1/16S473J	R 774	(B,64,112)	RS1/16S473J
R 678	(A,130,51)	RS1/16S473J	R 775	(B,63,113)	RS1/16S472J
R 679	(A,130,57)	RS1/16S473J	R 776	(B,73,103)	RS1/16S473J
R 680	(A,130,52)	RS1/16S333J	R 777	(B,76,105)	RS1/16S103J
R 681	(A,125,57)	RS1/16S104J	R 778	(B,78,106)	RS1/16S103J
R 682	(A,125,55)	RS1/16S103J	R 779	(B,74,109)	RS1/16S103J
R 683	(A,130,38)	RS1/16S473J	R 781	(A,119,10)	RS1/16S472J
R 684	(B,117,65)	RS1/16S102J	R 782	(A,120,12)	RS1/16S223J
R 685	(A,140,44)	RS1/16S473J	R 783	(A,127,10)	RS1/16S472J
R 686	(A,140,46)	RS1/16S473J	R 784	(A,128,12)	RS1/16S223J
R 687	(A,125,49)	RS1/16S103J	R 801	(B,142,26)	RS1/16S102J
R 688	(A,130,45)	RAB4C102J	R 802	(B,148,19)	RS1/16S5602D
R 690	(A,108,54)	RS1/16S681J	R 803	(B,148,22)	RS1/16S1002D
R 691	(B,102,61)	RS1/16S103J	R 804	(B,161,18)	RS1/16S102J
R 692	(A,115,29)	RS1/16S105J	R 805	(A,144,48)	RS1/16S102J
R 693	(A,125,52)	RS1/16S183J	R 806	(A,150,48)	RS1/16S102J
R 694	(A,125,51)	RS1/16S102J	R 807	(A,155,48)	RS1/16S102J
R 695	(A,125,54)	RS1/16S102J	R 808	(B,148,16)	RS1/16S5101D
R 696	(B,136,54)	RS1/16S102J	R 811	(B,103,128)	RS1/16S5602D
R 697	(A,130,55)	RS1/16S0R0J	R 812	(B,102,130)	RS1/16S1002D
R 698	(A,121,40)	RS1/16S0R0J	R 813	(B,106,120)	RS1/16S102J
R 699	(A,134,40)	RS1/16S473J	R 814	(B,103,131)	RS1/16S5600D
R 700	(A,114,56)	RS1/16S0R0J	R 821	(B,161,44)	RS1/16S2702D
R 722	(B,115,29)	RS1/16S0R0J	R 822	(B,158,44)	RS1/16S1002D
R 723	(B,109,33)	RS1/16S1501D	R 823	(B,162,55)	RS1/16S102J
R 724	(A,137,44)	RS1/16S473J	R 824	(B,162,46)	RS1/16S2702D
R 725	(A,113,42)	RS1/16S0R0J	R 832	(B,150,36)	RS1/16S5601D
R 731	(A,101,27)	RS1/16S104J	R 833	(B,149,37)	RS1/16S6801D
R 732	(A,98,25)	RS1/16S473J	R 834	(A,139,32)	RS1/16S473J
R 733	(A,99,27)	RS1/16S102J	R 835	(A,139,37)	RS1/16S104J
R 734	(A,97,27)	RS1/16S102J	R 836	(A,141,38)	RS1/16S164J
R 735	(A,93,27)	RS1/16S104J	R 837	(A,144,38)	RS1/16S123J
R 736	(A,103,31)	RS1/16S102J	R 838	(A,144,41)	RS1/16S123J
R 741	(B,25,115)	RS1/16S222J	R 839	(A,145,38)	RS1/16S222J
R 742	(B,52,109)	RS1/16S103J	R 840	(A,157,38)	RS1/16S392J
R 743	(B,44,112)	RS1/16S101J	R 841	(B,142,92)	RS1/16S391J
R 744	(B,51,115)	RS1/16S103J	R 842	(B,146,73)	RS1/16S2R2J
R 745	(B,47,112)	RS1/16S103J	R 843	(B,146,71)	RS1/16S2R2J
R 746	(B,52,117)	RS1/16S221J	R 844	(B,147,73)	RS1/16S2R2J

Circuit Symbol and No.		Part No.
R 845	(B,147,71)	RS1/16S2R2J
R 846	(B,157,71)	RS1/16S271J
R 851	(B,154,68)	RS1/16S221J
R 852	(A,141,60)	RS1/16S2201D
R 853	(A,138,60)	RS1/16S1502D
R 854	(A,138,59)	RS1/16S1002D
R 855	(A,141,59)	RS1/16S0R0J
R 856	(B,132,67)	RS1/16S102J
R 857	(A,142,72)	RS1/16S104J
R 858	(A,142,75)	RS1/16S183J
R 861	(B,136,28)	RS1/16S6202D
R 862	(B,140,23)	RS1/16S1002D
R 863	(B,128,26)	RS1/16S102J
R 871	(B,141,100)	RS1/16S683J
R 872	(B,141,98)	RS1/16S123J
R 873	(B,149,95)	RAB4C680J
R 874	(B,145,97)	RAB4C680J
R 875	(B,162,98)	RS1/16S102J
R 876	(A,168,106)	RS2PMFR47J
R 877	(A,155,92)	RS1/16S103J
R 878	(B,161,92)	RS1/16S103J
R 880	(A,157,90)	RS1/16S562J
R 881	(A,159,94)	RS1/16S102J
R 882	(A,167,94)	RAB4C680J
R 883	(A,163,93)	RAB4C680J
R 884	(B,159,97)	RS1/16S103J
R 885	(A,165,98)	RS1/16S103J
R 891	(B,143,8)	RS1/16S222J
R 892	(B,142,8)	RS1/16S222J
R 893	(B,145,8)	RS1/16S473J
R 901	(B,14,88)	RS1/16S301J
R 903	(B,15,91)	RS1/16S301J
R 905	(B,12,95)	RS1/16S153J
R 911	(A,142,85)	RS1/16S104J
R 912	(A,142,87)	RS1/16S103J
R 921	(A,133,66)	RS1/16S103J
R 922	(A,133,69)	RS1/16S103J
R 931	(A,133,60)	RS1/16S104J
R 932	(A,133,63)	RS1/16S223J
R 941	(A,142,80)	RS1/16S104J
R 942	(A,141,82)	RS1/16S223J
R 951	(B,21,121)	RS1/16S271J
R 952	(B,23,120)	RS1/16S271J
R 953	(B,25,109)	RS1/16S0R0J
R 954	(B,21,119)	RS1/16S271J
R 955	(B,21,118)	RS1/16S103J
R 956	(B,23,117)	RS1/16S103J
R 961	(A,130,83)	RS1/16S0R0J
R 963	(A,164,82)	RS1/16S0R0J
R 964	(A,161,83)	RS1/16S271J
R 965	(A,161,84)	RS1/16S271J
R 966	(A,161,86)	RS1/16S271J
R 967	(A,161,87)	RS1/16S103J
R 968	(A,161,89)	RS1/16S103J
R 972	(B,25,21)	RS1/16S3901D
R 973	(A,21,17)	RS1/16S4701D
R 975	(B,26,24)	RS1/16S2202D
R 976	(B,26,21)	RS1/16S2202D
R 978	(B,24,10)	RS1/16S6801D
R 979	(B,24,7)	RS1/16S0R0J

Circuit Symbol and No.			Part No.
R 980	(B,23,10)		RS1/16S4701D
R 981	(A,23,13)		RS1/16S8200D
R 983	(B,23,27)		RS1/16S560J
R 984	(A,17,11)		RS1/16S560J
R 985	(B,20,24)		RS1/16S272J
R 986	(B,18,21)		RS1/16S221J
R 987	(B,19,10)		RS1/16S272J
R 988	(A,24,16)		RS1/16S6801D
R 989	(B,18,10)		RS1/16S221J
R 990	(A,24,17)		RS1/16S1502D
R 991	(B,27,9)		RS1/16S6801D
R 992	(B,21,10)		RS1/16S7501D
R 994	(B,27,11)		RS1/16S6802D
R 995	(A,21,13)		RS1/16S4702D
R 996	(B,21,21)		RS1/16S2203D
R 997	(A,19,17)		RS1/16S3302D
R 998	(A,19,13)		RS1/16S3302D

CAPACITORS

C 101	(B,59,13)		CKSRYB105K10
C 102	(B,62,11)		CKSRYB105K10
C 103	(B,61,11)		CKSRYB105K10
C 104	(B,64,13)		CKSRYB105K10
C 105	(B,52,23)		CKSRYB105K10
C 106	(B,51,23)		CKSRYB105K10
C 107	(A,75,12)		CKSQYB225K10
C 108	(B,62,19)		CKSRYB104K50
C 109	(A,74,7)		CEVLW220M16
C 111	(A,89,49)		CKSYB106K6R3
C 112	(A,85,49)		CKSYB106K6R3
C 113	(A,85,43)		CCSRCK2R0C50
C 114	(A,88,43)		CCSRCK2R0C50
C 115	(A,83,39)		CKSRYB104K50
C 116	(A,88,27)	10 µF	CCG1171
C 117	(A,84,36)		CKSRYB104K50
C 118	(B,70,33)		CKSRYB104K50
C 119	(A,92,37)	22 µF	CCG1178
C 131	(B,51,13)		CKSRYB105K10
C 132	(B,54,11)		CKSRYB105K10
C 133	(B,52,11)		CKSRYB105K10
C 134	(B,56,13)		CKSRYB105K10
C 135	(B,51,20)		CKSRYB105K10
C 136	(B,49,20)		CKSRYB105K10
C 137	(A,55,16)		CKSQYB225K10
C 138	(B,53,19)		CKSRYB104K50
C 139	(A,63,7)		CEVLW220M16
C 142	(B,76,51)		CKSYB106K6R3
C 143	(B,79,51)		CKSYB106K6R3
C 144	(B,79,45)		CCSRCH4R0D50
C 145	(B,76,45)		CCSRCH4R0D50
C 146	(B,81,40)		CKSRYB104K50
C 147	(B,78,29)	10 µF	CCG1171
C 148	(B,82,37)		CKSRYB104K50
C 151	(A,48,23)		CKSRYB105K10
C 152	(A,52,23)		CKSRYB105K10
C 153	(A,49,23)		CKSRYB105K10
C 154	(A,51,23)		CKSRYB105K10
C 155	(B,59,20)		CKSRYB105K10
C 156	(B,57,20)		CKSRYB105K10

Circuit Symbol and No.	Part No.
C 157 (A,51,12)	CKSQYB225K10
C 158 (A,50,15)	CKSRYB104K50
C 159 (A,56,7)	CEVLW220M16
C 162 (B,36,38)	CKSYB106K6R3
C 163 (B,36,35)	CKSYB106K6R3
C 164 (B,31,32)	CCSRCH4R0D50
C 165 (B,31,39)	CCSRCH4R0D50
C 166 (B,27,33)	CKSRYB104K50
C 167 (B,20,34) 10 µF	CCG1171
C 168 (B,24,34)	CKSRYB104K50
C 169 (B,73,33)	CKSRYB104K50
C 182 (B,42,46)	CKSYB106K6R3
C 183 (B,40,43)	CKSYB106K6R3
C 184 (B,36,41)	CCSRCH4R0D50
C 185 (B,34,49)	CCSRCH4R0D50
C 186 (B,32,42)	CKSRYB104K50
C 187 (B,23,42) 10 µF	CCG1171
C 188 (B,21,45)	CKSRYB104K50
C 189 (B,71,33)	CKSRYB104K50
C 191 (B,36,58) 22 µF	CCG1178
C 192 (B,36,56) 22 µF	CCG1178
C 193 (B,25,59)	CCSRCK2R0C50
C 194 (B,25,50)	CCSRCK2R0C50
C 195 (B,21,51)	CKSRYB104K50
C 196 (B,18,51) 10 µF	CCG1171
C 197 (B,16,51)	CKSRYB104K50
C 198 (B,17,59)	CKSYB106K6R3
C 200 (B,28,65)	CKSYB475K16
C 201 (B,30,58)	CKSRYB103K50
C 202 (A,50,45)	CEVLW220M16
C 203 (A,56,46)	CEVLW101M10
C 205 (A,52,39)	CKSRYB105K10
C 221 (A,81,26)	CKSQYB225K10
C 222 (A,83,26)	CKSQYB225K10
C 223 (A,74,19)	CEVLW470M16
C 224 (A,79,18)	CKSRYB103K50
C 226 (B,68,33)	CKSRYB104K50
C 227 (B,51,38)	CKSRYB105K10
C 228 (B,51,39)	CKSRYB105K10
C 231 (B,84,51)	CKSYB106K6R3
C 232 (B,87,51)	CKSYB106K6R3
C 233 (B,86,45)	CCSRCH4R0D50
C 234 (B,88,45)	CCSRCH4R0D50
C 235 (B,92,40)	CKSRYB104K50
C 236 (B,90,32) 10 µF	CCG1171
C 237 (B,92,37)	CKSRYB104K50
C 238 (B,74,33)	CKSRYB104K50
C 241 (A,66,18)	CEVLW470M16
C 242 (A,58,23)	CEVLW470M16
C 243 (B,63,29)	CKSRYB104K50
C 244 (B,56,29)	CKSRYB104K50
C 245 (A,66,29)	CKSYB475K16
C 246 (B,63,31)	CKSRYB104K50
C 247 (A,60,29)	CKSQYB225K10
C 248 (B,59,29)	CKSRYB105K10
C 249 (B,57,29)	CKSRYB105K10
C 250 (B,60,29)	CKSRYB104K50
C 251 (A,62,49) 47 µF	CCG1181
C 252 (A,62,46) 22 µF	CCG1178
C 253 (A,62,41) 47 µF	CCG1181

Circuit Symbol and No.	Part No.
C 254 (A,62,44) 22 µF	CCG1178
C 256 (A,67,48)	CCSRCJ3R0C50
C 257 (A,72,46)	CKSRYB104K50
C 258 (A,77,38)	CEVLW100M16
C 259 (A,78,45)	CEVLW101M10
C 260 (A,79,50)	CKSRYB104K50
C 261 (A,64,54)	CEVLW101M10
C 262 (B,72,58) 10 µF	CCG1171
C 263 (A,87,59)	CEVLW221M4
C 264 (A,80,59)	CEVLW221M4
C 265 (A,73,59)	CEVLW221M4
C 266 (A,69,45)	CCSRCJ3R0C50
C 271 (A,63,36)	CKSRYB105K10
C 272 (A,57,36)	CEVLW101M10
C 281 (A,53,67)	CKSQYB225K10
C 282 (A,55,67)	CKSQYB225K10
C 283 (B,54,88)	CKSQYB225K10
C 284 (B,55,68)	CKSQYB225K10
C 285 (B,52,87)	CKSRYB104K50
C 286 (B,52,69)	CKSRYB104K50
C 287 (B,63,74)	CKSQYB225K10
C 288 (B,61,69)	CKSQYB225K10
C 289 (B,65,74)	CKSQYB225K10
C 290 (B,61,71)	CKSQYB225K10
C 291 (B,49,89)	CKSYB475K16
C 292 (B,49,67)	CKSYB475K16
C 293 (B,45,87)	CKSYB475K16
C 294 (B,46,69)	CKSYB475K16
C 295 (B,41,83)	CKSYB475K16
C 296 (B,42,71)	CKSYB475K16
C 297 (A,58,79)	CEVLW470M16
C 298 (B,60,74)	CKSRYB104K50
C 299 (A,58,74)	CKSRYB474K16
C 300 (B,59,74)	CKSRYB104K50
C 301 (A,54,73)	CEVLW100M16
C 302 (A,48,82)	CEVLW100M16
C 303 (B,43,81)	CKSRYB104K50
C 304 (A,46,73)	CEVLW470M16
C 311 (B,34,86) 10 µF	CCG1182
C 312 (B,34,89) 10 µF	CCG1182
C 315 (B,34,74) 10 µF	CCG1182
C 316 (B,34,77) 10 µF	CCG1182
C 319 (B,34,80) 10 µF	CCG1182
C 320 (B,34,83) 10 µF	CCG1182
C 324 (B,14,72)	CKSRYB104K50
C 331 (B,28,119)	CKSRYB105K10
C 332 (B,35,119)	CKSRYB105K10
C 333 (B,28,121)	CKSRYB105K10
C 334 (B,35,121)	CKSRYB105K10
C 335 (B,31,119)	CKSRYB105K10
C 336 (B,38,119)	CKSRYB105K10
C 337 (B,31,121)	CKSRYB105K10
C 338 (B,38,121)	CKSRYB105K10
C 339 (B,25,119) 10 µF	CCG1182
C 340 (B,42,121)	CKSYB475K16
C 341 (B,47,121)	CKSYB475K16
C 342 (A,55,125)	CKSRYB104K50
C 343 (A,62,123) 1 000 µF/16 V	CCH1428
C 345 (B,62,153)	CKSQYB104K50
C 351 (B,86,108)	CKSRYB103K50

Circuit Symbol and No.		Part No.
C 360	(A,109,66)	CKSRYB103K50
C 391	(B,53,33)	CKSRYB104K50
C 392	(B,50,35)	CKSRYB104K50
C 401	(B,150,147)	CKSRYB103K50
C 403	(A,148,109)	CEVLW101M10
C 405	(B,120,141)	CKSRYB103K50
C 406	(B,120,143)	CKSYB475K16
C 408	(B,116,145)	CKSRYB103K50
C 409	(B,116,147)	CKSYB106K6R3
C 410	(B,103,142)	CKSRYB474K16
C 411	(B,107,140)	CKSRYB474K16
C 413	(B,144,138)	CKSYB475K16
C 414	(A,157,9)	CKSRYB102K50
C 415	(B,109,141)	CKSRYB474K16
C 416	(B,106,141)	CKSRYB474K16
C 417	(B,99,132)	CKSRYB104K50
C 418	(B,101,136)	CKSQYB225K10
C 419	(B,99,129)	CKSRYB105K10
C 420	(B,129,143)	CKSRYB103K50
C 421	(B,145,141)	CKSYB475K16
C 422	(B,108,117)	CKSRYB103K50
C 423	(B,119,123)	CKSRYB104K50
C 461	(B,129,90)	CKSRYB102K50
C 462	(B,128,90)	CKSRYB102K50
C 464	(A,124,86)	CKSRYB104K50
C 465	(A,167,47)	CCSRCH101J50
C 466	(A,162,18)	CKSRYB102K50
C 467	(A,129,102)	CKSRYB104K50
C 468	(A,113,95)	CCSRCH101J50
C 481	(B,101,27)	CKSRYB104K50
C 484	(B,97,16)	CKSRYB104K50
C 501	(A,112,14)	CKSRYB103K50
C 511	(B,35,95)	CCSRCH101J50
C 513	(A,58,87)	CEVLW221M4
C 514	(A,48,88)	CEVLW221M4
C 515	(B,46,92)	CKSRYB102K50
C 541	(A,42,59)	CKSYB475K16
C 542	(A,42,65)	CKSRYB104K50
C 544	(A,46,65)	CKSRYB104K50
C 545	(A,45,63)	CKSRYB102K50
C 601	(A,118,52)	CKSYB106K6R3
C 602	(B,103,47)	CCSRCH8R0D50
C 603	(B,103,44)	CCSRCH8R0D50
C 604	(A,109,42)	CKSRYB104K50
C 605	(A,118,41)	CKSRYB102K50
C 606	(B,101,54)	CCSRCH470J50
C 607	(B,102,54)	CCSRCH470J50
C 608	(B,104,56)	CKSRYB103K50
C 609	(B,104,38)	CKSRYB105K10
C 610	(B,100,37)	CKSYB475K16
C 611	(A,116,35)	CKSRYB474K16
C 612	(A,130,54)	CKSRYB104K50
C 614	(A,118,44)	CEVLW100M16
C 615	(A,108,56)	CCSRCH470J50
C 616	(A,113,43)	CCSRCH101J50
C 617	(A,108,50)	CCSRCH470J50
C 618	(A,114,49)	CCSRCH470J50
C 619	(B,96,38)	CKSRYB104K50
C 731	(A,101,28)	CKSRYB104K50
C 732	(A,93,26)	CKSRYB105K10

Circuit Symbol and No.			Part No.
C 733	(A,98,24)		CKSRYB102K50
C 741	(A,39,121)		CEVLW470M16
C 742	(A,47,121)		CEVLW470M16
C 743	(B,42,108)	10 µF	CCG1182
C 744	(A,54,117)		CEVLW330M10
C 751	(A,134,52)		CKSRYB105K10
C 761	(B,54,111)		CKSRYB105K10
C 762	(B,55,113)		CKSRYB104K50
C 763	(B,62,146)		CKSRYB104K50
C 764	(B,67,109)		CKSRYB103K50
C 765	(B,65,110)		CKSRYB104K50
C 766	(B,61,115)		CKSRYB104K50
C 769	(B,76,106)		CKSRYB104K50
C 770	(B,88,147)		CKSRYB104K50
C 771	(A,73,129)		CKSRYB104K50
C 781	(A,114,11)		CKSRYB104K50
C 782	(A,122,11)		CKSRYB104K50
C 801	(B,145,29)		CKSRYB104K50
C 802	(A,143,24)		CEVLW470M6R3
C 803	(B,142,30)		CKSRYB103K50
C 804	(B,152,15)		CKSRYB103K50
C 805	(A,148,18)		CEVLW470M16
C 806	(A,156,20)		CKSQYB105K16
C 811	(A,129,110)		CEVLW220M16
C 812	(B,129,133)		CKSRYB103K50
C 813	(B,120,132)		CKSYB475K16
C 814	(B,119,124)		CKSRYB102K50
C 817	(B,102,127)		CKSRYB103K50
C 818	(A,108,109)		CEVLW470M16
C 819	(B,104,125)		CKSQYB105K16
C 821	(B,161,42)		CKSRYB103K50
C 822	(A,146,56)		CEVLW470M16
C 823	(B,161,50)		CKSQYB105K16
C 831	(A,142,33)		CKSQYB105K16
C 832	(B,152,36)		CKSRYB103K50
C 833	(B,151,38)		CKSRYB103K50
C 834	(A,140,33)		CKSRYB473K50
C 835	(A,141,36)		CCSRCH220J50
C 836	(A,157,31)		CKSRYB104K50
C 837	(A,147,31)		CKSYB475K16
C 838	(A,153,33)		CKSRYB104K50
C 839	(B,146,41)		CKSRYB104K50
C 840	(B,159,40)		CKSYB475K16
C 841	(B,136,82)		CKSRYB102K50
C 842	(A,148,75)		CEVLW101M10
C 843	(B,136,83)		CKSRYB103K50
C 844	(B,135,85)		CKSRYB103K50
C 845	(A,163,74)		CEVLW470M16
C 846	(A,166,66)	1 000 µF/16 V	CCH1428
C 847	(B,154,70)		CKSRYB104K50
C 851	(B,142,59)		CKSRYB102K50
C 852	(A,148,66)		CEVLW101M10
C 853	(B,140,57)		CKSRYB103K50
C 854	(B,141,50)		CKSRYB103K50
C 855	(B,158,65)		CKSRYB104K50
C 856	(A,156,69)		CEVLW470M16
C 857	(A,139,65)		CEVLW101M6R3
C 858	(A,139,70)		CKSRYB102K50
C 859	(B,142,61)		CKSQYB105K16
C 860	(A,139,72)		CKSRYB104K50

Circuit Symbol and No.		Part No.
C 861	(B,136,30)	CKSRYB103K50
C 862	(A,132,10)	CEVLW470M16
C 863	(B,133,31)	CKSQYB105K16
C 871	(A,143,100) 10 µF	CCG1223
C 873	(A,150,96) 10 µF	CCG1223
C 891	(A,139,10)	CEVLW470M16
C 892	(A,147,10)	CEVLW470M16
C 901	(B,30,100)	CKSRYB104K50
C 902	(B,15,80)	CKSYB475K16
C 904	(A,7,79) 2 200 µF/16V	CCH1659
C 911	(A,139,84)	CKSRYB104K50
C 921	(A,130,66)	CKSRYB104K50
C 931	(A,130,60)	CKSRYB104K50
C 932	(A,134,58)	CKSRYB104K50
C 941	(A,139,78)	CKSRYB104K50
C 942	(A,143,80)	CKSRYB104K50
C 951	(B,13,111)	CKSRYB103K50
C 952	(A,15,119)	CEVLW100M16
C 953	(B,20,112)	CKSRYB103K50
C 961	(A,154,88)	CKSRYB103K50
C 962	(A,151,89)	CEVLW100M16
C 963	(A,156,83)	CKSRYB103K50
C 971	(B,25,24)	CCSRCH101J50
C 974	(A,44,16) 220 µF/10 V	CCH1409
C 975	(B,25,7)	CKSRYB223K50
C 976	(A,39,15) 220 µF/10 V	CCH1409
C 977	(A,44,8) 470 µF/6.3 V	CCH1437
C 980	(B,28,18)	CKSYB475K16
C 981	(A,24,13)	CCSRCH101J50
C 982	(B,22,7)	CKSRYB683K16
C 984	(B,15,18)	CKSRYB104K50
C 985	(A,17,17)	CKSRYB104K50
C 986	(A,17,13)	CKSRYB104K50
C 987	(B,13,17)	CKSYB475K16
C 992	(A,7,28) 2 200 µF/16V	CCH1659
C 993	(B,16,24)	CKSYB475K16

B

Unit Number :
Unit Name : Keyboard Unit

MISCELLANEOUS

Circuit Symbol and No.		Part No.
IC 4001	(B,79,9) IC	LC75836WS
IC 4021	(A,100,10) IC	SBX3050-01
Q 4041	(B,100,13) Digital Transistor	DTC143EUA
D 4001	(A,143,6) Diode	MALS068X
D 4002	(A,138,8) Diode	MALS068X
D 4003	(A,142,8) Diode	MALS068X
D 4021	(A,126,8) Diode	UDZS5R6(B)
D 4041	(B,107,6) Diode	DAN202U
D 4042	(A,94,9) White LED	NESW505C-5273
D 4051	(A,21,4) LED	CL-195SR-CD
D 4052	(A,6,5) LED	CL-195SR-CD
D 4053	(A,22,17) LED	CL-195SR-CD
D 4054	(A,6,18) LED	CL-195SR-CD
D 4055	(A,110,6) LED	CL-195SR-CD
D 4056	(A,123,6) LED	CL-195SR-CD
D 4057	(A,135,6) LED	CL-195SR-CD
D 4058	(A,146,20) LED	CL-195SR-CD
D 4059	(A,151,6) LED	CL-195SR-CD
D 4060	(A,164,7) LED	CL-195SR-CD
D 4071	(A,21,3) LED	CL-197HB1-D(CDE)
D 4072	(A,5,5) LED	CL-197HB1-D(CDE)
D 4073	(A,23,17) LED	CL-197HB1-D(CDE)
D 4074	(A,5,18) LED	CL-197HB1-D(CDE)
D 4075	(A,110,4) LED	CL-197HB1-D(CDE)
D 4076	(A,123,4) LED	CL-197HB1-D(CDE)
D 4077	(A,135,4) LED	CL-197HB1-D(CDE)
D 4078	(A,146,19) LED	CL-197HB1-D(CDE)
D 4079	(A,151,4) LED	CL-197HB1-D(CDE)
D 4080	(A,164,4) LED	CL-197HB1-D(CDE)
L 4001	(B,94,14) Inductor	CTF1473
S 4031	(A,156,19) Push Switch	CSG1155
S 4032	(A,14,11) Encoder(VOLUME/ATT)	CSD1140
S 4033	(A,160,6) Push Switch	CSG1155
S 4034	(A,132,6) Push Switch	CSG1155
S 4035	(A,106,6) Push Switch	CSG1155
S 4036	(A,154,6) Push Switch	CSG1155
S 4037	(A,119,6) Push Switch	CSG1155
	LCD	CAW1946

RESISTORS

Circuit Symbol and No.		Part No.
R 4001	(B,103,6)	RS1/16S221J
R 4002	(B,103,5)	RS1/16S221J
R 4003	(B,89,4)	RS1/16S221J
R 4004	(B,89,6)	RS1/16S473J
R 4005	(B,86,8)	RS1/16S393J
R 4021	(B,98,10)	RS1/16S101J
R 4022	(B,97,13)	RS1/16S470J
R 4031	(B,34,8)	RS1/16S513J
R 4033	(B,159,15)	RS1/16S103J
R 4034	(B,158,10)	RS1/16S222J
R 4035	(B,29,11)	RS1/16S103J
R 4036	(B,152,7)	RS1/16S222J
R 4037	(B,155,6)	RS1/16S103J
R 4041	(A,94,14)	RS1/16S391J
R 4042	(B,97,14)	RS1/16S391J
R 4051	(B,17,7)	RS1/16S271J
R 4052	(B,17,10)	RS1/16S271J
R 4053	(B,15,19)	RS1/16S271J
R 4054	(B,18,16)	RS1/16S271J
R 4055	(B,152,9)	RS1/16S101J
R 4056	(B,154,11)	RS1/16S221J
R 4057	(B,159,8)	RS1/16S101J
R 4058	(B,156,9)	RS1/16S221J
R 4071	(B,10,7)	RS1/16S151J
R 4072	(B,13,8)	RS1/16S391J
R 4073	(B,12,19)	RS1/16S151J
R 4074	(B,17,16)	RS1/16S391J
R 4075	(B,111,7)	RS1/16S151J
R 4076	(B,111,10)	RS1/16S391J
R 4077	(B,157,19)	RS1/16S151J
R 4078	(B,157,18)	RS1/16S391J
R 4079	(B,159,14)	RS1/16S151J
R 4080	(B,156,14)	RS1/16S391J
R 4091	(B,159,5)	RS1/16S0R0J
R 4092	(B,152,5)	RS1/16S0R0J

CAPACITORS

Circuit Symbol and No.		Part No.
C 4001	(B,88,8)	CCSRCH102J25
C 4002	(B,91,7)	CKSRYB104K50
C 4003	(B,91,9)	CKSRYB104K50
C 4004	(B,88,10) 10 μF	CCG1171
C 4021	(B,100,9) 10 μF	CCG1171
C 4041	(B,94,9)	CKSRYB104K50
C 4071	(B,20,5)	CKSRYB104K50
C 4072	(B,10,4)	CKSRYB104K50
C 4073	(B,26,14)	CKSRYB104K50
C 4074	(B,10,19)	CKSRYB104K50
C 4075	(A,112,8)	CKSRYB104K50
C 4076	(A,128,5)	CKSRYB104K50
C 4077	(A,138,5)	CKSRYB104K50
C 4078	(B,152,15)	CKSRYB104K50
C 4079	(A,148,5)	CKSRYB104K50
C 4080	(B,159,12)	CKSRYB104K50

Monitor Unit
Consists of
Monitor PCB
Upper PCB

CH

Unit Number : CWN2330
Unit Name : Monitor Unit

MISCELLANEOUS

Circuit Symbol and No.		Part No.
IC 5101	(A,66,94) Regulator IC	S-1132B15-U5
IC 5102	(A,66,99) IC	S-1132B25-U5
IC 5103	(A,74,75) IC	BD6171KV
IC 5201	(A,63,31) IC	TA78L05F
IC 5202	(A,60,43) L-MOS And Gate	TC7SET08FUS1
IC 5203	(A,59,37) L-MOS And Gate	TC7SET08FUS1
IC 5204	(A,44,31) IC	OZ961ISN
IC 5205	(A,40,21) FET	SI6544BDQ
IC 5206	(A,40,17) FET	SI6544BDQ
IC 5301	(A,81,110) IC	NJM2505AF
IC 5401	(A,37,92) IC	TC90A96BFGSING
IC 5501	(A,10,100) IC	M62343FP
IC 5502	(A,12,79) IC	TC7SET04FUS1
IC 5503	(A,14,87) IC	NJM2100V
IC 5504	(A,56,83) IC	TC7SET04FUS1
IC 5505	(A,15,74) IC	TC7S66FU
IC 5506	(A,57,76) IC	TC74VHC04FTS1
IC 5507	(A,11,66) IC	NJM082BV
IC 5602	(A,121,47) IC	S-80827CNNB-B8M
IC 5603	(A,119,65) IC	PEG333A
IC 5604	(A,135,66) IC	S-93C56BD0I-J8
IC 5801	(A,138,94) IC	PEH098A
IC 5802	(A,116,91) IC	PDC149A
Q 5101	(A,75,63) Chip Transistor	DTC114EUA
Q 5102	(A,85,80) FET	RSQ035P03
Q 5103	(A,84,73) FET	RSQ035P03
Q 5201	(A,59,12) Transistor	UMX2N
Q 5202	(A,60,25) Transistor	2SC4617
Q 5203	(A,57,26) Transistor	2SC4617
Q 5204	(A,55,41) Transistor	2SA1774
Q 5205	(A,59,18) Transistor	2SC4617
Q 5206	(A,62,18) Transistor	2SC4617
Q 5301	(A,74,109) Transistor	2SC4081
Q 5302	(A,62,111) Transistor	2SA1576A
Q 5401	(A,39,112) Transistor	2SC4617
Q 5501	(A,9,55) Transistor	UMX2N
Q 5502	(A,13,55) Transistor	UMT2N
Q 5601	(A,113,48) Chip Transistor	DTC124EUA
Q 5602	(A,144,46) Transistor	2SA1774
Q 5603	(A,143,51) Chip Transistor	DTC114EUA
Q 5604	(A,147,46) Transistor	2SA1774
Q 5605	(A,146,51) Chip Transistor	DTC114EUA
Q 5607	(A,137,39) Chip Transistor	DTC114EUA
Q 5608	(A,140,45) Transistor	2SA1797
Q 5701	(A,144,59) Transistor	UMF5N
Q 5702	(A,144,63) Transistor	UMF5N
Q 5703	(A,143,70) Transistor	FMG12
Q 5801	(A,107,95) Transistor	2SA1774
Q 5802	(A,103,91) Transistor	2SA1774
Q 5803	(A,102,94) Transistor	2SA1774
Q 5901	(A,134,5) Transistor	2SA1774
D 5001	(A,109,105) Diode	UDZS5R6(B)
D 5002	(A,111,107) Diode	UDZS5R6(B)
D 5003	(A,110,110) Diode	UDZS5R6(B)
D 5004	(A,112,110) Diode	UDZS5R6(B)
D 5005	(A,122,33) Diode	UDZS5R6(B)
D 5006	(A,114,39) Diode	UDZS5R6(B)
D 5007	(A,119,39) Diode	UDZS5R6(B)
D 5008	(A,122,37) Diode	UDZS5R6(B)
D 5101	(A,73,95) Diode	RB500V-40
D 5102	(A,73,100) Diode	RB500V-40
D 5103	(A,87,85) Diode	U2FWJ44N
D 5104	(A,87,69) Diode	RB160M-30
D 5105	(A,83,64) Diode	RB548W
D 5106	(A,81,64) Diode	RB548W
D 5107	(A,72,63) Diode	RB548W
D 5108	(A,70,63) Diode	RB548W
D 5109	(A,68,63) Diode	RB548W
D 5201	(A,57,22) Diode	UDZS6R2(B)
D 5202	(A,55,46) Diode	1SS355
D 5203	(A,62,40)	RB751V-40
D 5204	(A,47,20) Diode	HZU6R2(B3)
D 5205	(A,47,15) Diode	HZU6R2(B3)
D 5206	(A,57,20) Diode	UDZS8R2(B)
D 5207	(A,63,6) Diode	MA143
D 5208	(A,61,6) Diode	HZU6R2(B3)
D 5209	(A,69,5) Diode	MA143
D 5601	(A,124,47) Diode	MA111
D 5701	(A,142,67) Diode	MA111
D 5901	(A,124,6) IC	TPS850
D 5931	(A,24,8) LED	CL-197HB1-D(CDE)
D 5932	(A,9,8) LED	CL-197HB1-D(CDE)
D 5933	(A,142,8) LED	CL-197HB1-D(CDE)
D 5934	(A,156,8) LED	CL-197HB1-D(CDE)
D 5951	(A,24,7) LED	CL-195SR-CD
D 5952	(A,9,7) LED	CL-195SR-CD
D 5953	(A,142,7) LED	CL-195SR-CD
D 5954	(A,156,7) LED	CL-195SR-CD
D 5971	(A,79,13) LED	CL-197HB1-D(CDE)
D 5972	(A,87,13) LED	CL-197HB1-D(CDE)

Circuit Symbol and No.				Part No.
D	5981	(A,79,11)	LED	CL-195SR-CD
D	5982	(A,87,11)	LED	CL-195SR-CD
L	5101	(A,55,106)	Inductor	CTF1635
L	5102	(A,93,95)	Choke Coil 10 μH	CTH1249
L	5103	(A,84,90)	Choke Coil 18 μH	CTH1250
L	5104	(A,78,51)	Inductor	CTF1488
L	5105	(A,89,65)	Choke Coil 68 μH	CTH1318
L	5107	(A,84,61)	Inductor	DTL1096
L	5108	(A,16,112)	Inductor	CTF1635
L	5109	(A,58,106)	Inductor	CTF1635
L	5110	(A,60,89)	Inductor	CTF1635
L	5111	(A,60,92)	Inductor	CTF1635
L	5112	(A,57,101)	Inductor	CTF1635
L	5113	(A,84,97)	Choke Coil 18 μH	CTH1250
L	5114	(A,65,84)	Inductor	CTF1635
L	5115	(A,93,64)	Inductor	CTF1635
L	5116	(A,63,63)	Inductor	CTF1635
L	5201	(A,78,24)	Coil	CTH1338
L	5202	(A,57,40)	Inductor	CTF1306
L	5301	(A,69,112)	Inductor	LCKAW220J2520
L	5302	(A,65,112)	Inductor	LCKAW270J2520
L	5303	(A,59,103)	Inductor	LCKAW101J2520
L	5304	(A,79,107)	Inductor	CTF1379
L	5401	(A,48,110)	Inductor	CTF1306
L	5402	(A,42,113)	Inductor	CTF1306
L	5403	(A,40,113)	Inductor	CTF1306
L	5404	(A,34,112)	Inductor	CTF1306
L	5405	(A,24,110)	Inductor	CTF1306
L	5406	(A,33,112)	Inductor	CTF1306
L	5407	(A,26,110)	Inductor	CTF1306
L	5408	(A,36,112)	Inductor	CTF1306
L	5409	(A,52,108)	Inductor	CTF1306
L	5411	(A,50,110)	Inductor	CTF1306
L	5412	(A,54,103)	Inductor	CTF1306
L	5413	(A,20,104)	Inductor	CTF1306
L	5414	(A,21,102)	Inductor	CTF1306
L	5415	(A,21,101)	Inductor	CTF1306
L	5416	(A,18,100)	Inductor	CTF1306
L	5417	(A,17,99)	Inductor	CTF1306
L	5418	(A,54,100)	Inductor	CTF1306
L	5419	(A,20,98)	Inductor	CTF1306
L	5420	(A,54,97)	Inductor	CTF1306
L	5421	(A,16,97)	Inductor	CTF1306
L	5422	(A,19,96)	Inductor	CTF1306
L	5423	(A,15,95)	Inductor	CTF1306
L	5424	(A,15,94)	Inductor	CTF1306
L	5425	(A,54,94)	Inductor	CTF1306
L	5426	(A,19,93)	Inductor	CTF1306
L	5427	(A,19,91)	Inductor	CTF1306
L	5428	(A,54,91)	Inductor	CTF1306
L	5429	(A,19,90)	Inductor	CTF1306
L	5430	(A,19,88)	Inductor	CTF1306
L	5431	(A,54,88)	Inductor	CTF1306
L	5432	(A,54,85)	Inductor	CTF1306
L	5433	(A,19,87)	Inductor	CTF1306
L	5434	(A,19,84)	Inductor	CTF1306
L	5435	(A,19,83)	Inductor	CTF1306
L	5436	(A,19,82)	Inductor	CTF1306
L	5437	(A,54,83)	Inductor	CTF1306
L	5438	(A,19,80)	Inductor	CTF1306

Circuit Symbol and No.				Part No.
L	5439	(A,47,73)	Ferrite Bead	CTF1528
L	5440	(A,47,75)	Ferrite Bead	CTF1528
L	5441	(A,46,73)	Ferrite Bead	CTF1528
L	5442	(A,46,75)	Ferrite Bead	CTF1528
L	5443	(A,45,74)	Ferrite Bead	CTF1528
L	5444	(A,45,76)	Ferrite Bead	CTF1528
L	5445	(A,43,74)	Inductor	CTF1306
L	5446	(A,39,77)	Ferrite Bead	CTF1528
L	5447	(A,39,75)	Ferrite Bead	CTF1528
L	5448	(A,38,77)	Ferrite Bead	CTF1528
L	5449	(A,38,75)	Ferrite Bead	CTF1528
L	5450	(A,37,77)	Ferrite Bead	CTF1528
L	5451	(A,37,75)	Ferrite Bead	CTF1528
L	5452	(A,36,74)	Inductor	CTF1306
L	5453	(A,35,75)	Ferrite Bead	CTF1528
L	5454	(A,35,77)	Ferrite Bead	CTF1528
L	5455	(A,34,73)	Ferrite Bead	CTF1528
L	5456	(A,33,77)	Ferrite Bead	CTF1528
L	5457	(A,33,75)	Ferrite Bead	CTF1528
L	5458	(A,33,73)	Ferrite Bead	CTF1528
L	5459	(A,28,75)	Ferrite Bead	CTF1528
L	5460	(A,29,77)	Ferrite Bead	CTF1528
L	5461	(A,27,77)	Ferrite Bead	CTF1528
L	5462	(A,25,75)	Ferrite Bead	CTF1528
L	5463	(A,26,77)	Ferrite Bead	CTF1528
L	5464	(A,25,76)	Ferrite Bead	CTF1528
L	5465	(A,25,77)	Ferrite Bead	CTF1528
L	5466	(A,48,75)	Inductor	CTF1306
L	5467	(A,31,74)	Inductor	CTF1306
L	5468	(A,30,74)	Inductor	CTF1306
L	5469	(A,50,74)	Inductor	CTF1306
L	5470	(A,42,74)	Inductor	CTF1306
L	5471	(A,41,74)	Inductor	CTF1306
L	5472	(A,18,78)	Inductor	LCKAW101J2520
L	5501	(A,15,78)	Inductor	CTF1306
L	5502	(A,8,84)	Inductor	LCKAW101J2520
L	5503	(A,9,75)	Inductor	LCKAW101J2520
L	5504	(A,53,62)	Inductor	CTF1306
L	5505	(A,22,70)	Inductor	DTL1096
L	5506	(A,15,65)	Inductor	DTL1096
L	5508	(A,49,72)	Inductor	CTF1306
L	5509	(A,28,70)	Inductor	CTF1635
L	5510	(A,20,70)	Inductor	CTF1635
L	5511	(A,62,81)	Inductor	CTF1635
L	5602	(A,108,59)	Inductor	CTF1306
L	5603	(A,136,60)	Inductor	CTF1306
L	5604	(A,101,66)	Inductor	CTF1306
L	5605	(A,132,48)	Inductor	CTF1488
L	5701	(A,139,60)	Inductor	CTF1379
L	5801	(A,104,77)	Inductor	LCKAW2R2J2520
L	5802	(A,139,51)	Inductor	CTF1488
L	5803	(A,108,77)	Inductor	LCKAW2R2J2520
L	5804	(A,143,73)	Inductor	CTF1395
L	5901	(A,117,7)	Inductor	LCKBW100K2520
T	5201	(B,51,10)	Transformer	CTT1119
TH	5601	(A,106,56)	Thermistor	CCX1051
X	5401	(A,45,112)	Crystal Resonator 42 MHz	CSS1604
X	5601	(A,119,52)	Ceramic Resonator 16.000 MHz	CSS1616
S	5921	(A,142,4)	Push Switch	CSG1155
S	5922	(A,9,4)	Push Switch	CSG1155

Circuit Symbol and No.			Part No.
S 5923	(A,24,4)	Push Switch	CSG1155
S 5924	(A,157,4)	Push Switch	CSG1155
VR5201	(A,35,28)	Semi-fixed 22 kΩ(B)	CCP1491
⚠FU5101	(A,83,51)	Fuse 1.25 A	CEK1255
⚠FU5201	(A,72,23)	Fuse 1.25 A	CEK1255

RESISTORS

Circuit Symbol and No.		Part No.
R 5005	(A,92,47)	RS1/16S0R0J
R 5006	(A,94,47)	RS1/16S0R0J
R 5007	(A,99,50)	RS1/16S0R0J
R 5008	(A,101,50)	RS1/16S0R0J
R 5009	(A,143,40)	RS1/16S0R0J
R 5010	(A,142,40)	RS1/16S0R0J
R 5011	(A,115,106)	RS1/16S101J
R 5012	(A,114,106)	RS1/16S101J
R 5013	(A,112,105)	RS1/16S101J
R 5014	(A,111,105)	RS1/16S101J
R 5015	(A,97,111)	RS1/16S101J
R 5101	(A,70,94)	RS1/16SS684J
R 5102	(A,70,99)	RS1/16SS474J
R 5103	(A,70,89)	RS1/16S0R0J
R 5104	(A,72,90)	RS1/16S6801D
R 5105	(A,89,94)	RS1/16S0R0J
R 5106	(A,80,88)	RS1/16S0R0J
R 5107	(A,75,90)	RS1/16S201J
R 5108	(A,81,86)	RS1/16S1001D
R 5109	(A,71,88)	RS1/16S1001D
R 5110	(A,75,88)	RS1/16S682J
R 5111	(A,66,81)	RS1/16S5100F
R 5112	(A,81,84)	RS1/16S1600D
R 5113	(A,78,87)	RS1/16S102J
R 5114	(A,69,81)	RS1/16S0R0J
R 5115	(A,78,85)	RS1/16S2700D
R 5116	(A,66,82)	RS1/16S2001F
R 5117	(A,73,85)	RS1/16S684J
R 5118	(A,77,82)	RS1/16S333J
R 5119	(A,73,82)	RS1/16S123J
R 5120	(A,82,80)	RS1/16S273J
R 5121	(A,82,83)	RS1/16S150J
R 5122	(A,87,72)	RS1/16S150J
R 5123	(A,82,75)	RS1/16S563J
R 5124	(A,74,67)	RS1/16S5102D
R 5125	(A,68,68)	RS1/16S0R0J
R 5126	(A,67,70)	RS1/16S1002D
R 5127	(A,76,65)	RS1/16S4300D
R 5128	(A,66,69)	RS1/16S1802D
R 5129	(A,77,67)	RS1/16S1802D
R 5130	(A,66,66)	RS1/16S2202D
R 5131	(A,66,63)	RS1/16S0R0J
R 5132	(A,78,64)	RS1/16S3303D
R 5133	(A,81,69)	RS1/16S0R0J
R 5134	(A,79,61)	RS1/16S0R0J
R 5135	(A,76,67)	RS1/16S2703D
R 5201	(A,63,43)	RS1/16S103J
R 5202	(A,57,24)	RS1/16S103J
R 5203	(A,60,24)	RS1/16S104J
R 5204	(A,60,45)	RS1/16S103J
R 5205	(A,56,29)	RS1/16S473J
R 5206	(A,56,44)	RS1/16S472J

Circuit Symbol and No.		Part No.
R 5207	(A,58,28)	RS1/16S105J
R 5208	(A,54,44)	RS1/16S473J
R 5209	(A,56,38)	RS1/16S333J
R 5210	(A,49,37)	RS1/16S513J
R 5211	(A,62,37)	RS1/16S103J
R 5212	(A,53,27)	RS1/16S105J
R 5213	(A,59,40)	RS1/16S102J
R 5214	(A,35,30)	RS1/16S5102D
R 5215	(A,45,20)	RS1/16S103J
R 5216	(A,45,16)	RS1/16S103J
R 5217	(A,57,17)	RS1/16S103J
R 5218	(A,63,15)	RS1/16S621J
R 5219	(A,57,18)	RS1/16S104J
R 5220	(A,61,21)	RS1/16S473J
R 5221	(A,61,12)	RS1/16S621J
R 5222	(A,60,15)	RS1/16S101J
R 5223	(A,58,15)	RS1/16S101J
R 5224	(A,59,9)	RS1/16S821J
R 5225	(A,58,6)	RS1/16S471J
R 5227	(A,38,31)	RS1/16S1001D
R 5301	(A,77,112)	RS1/16S512J
R 5302	(A,77,110)	RS1/16S104J
R 5303	(A,74,107)	RS1/16S153J
R 5304	(A,71,107)	RS1/16S104J
R 5305	(A,69,108)	RS1/16S681J
R 5306	(A,71,109)	RS1/16S471J
R 5307	(A,64,109)	RS1/16S272J
R 5308	(A,60,111)	RS1/16S391J
R 5311	(A,88,108)	RS1/16S101J
R 5312	(A,88,110)	RS1/16S101J
R 5401	(A,44,108)	RS1/16SS391J
R 5402	(A,59,113)	RS1/16S0R0J
R 5403	(A,45,108)	RS1/16SS105J
R 5404	(A,39,110)	RS1/16SS331J
R 5405	(A,37,111)	RS1/16SS152J
R 5406	(A,21,106)	RS1/16S0R0J
R 5407	(A,18,102)	RS1/16S331J
R 5408	(A,15,105)	RS1/16S101J
R 5410	(A,13,105)	RS1/16S101J
R 5411	(A,13,95)	RS1/16S470J
R 5412	(A,13,94)	RS1/16S470J
R 5413	(A,16,91)	RS1/16SS471J
R 5414	(A,16,93)	RS1/16SS333J
R 5415	(A,14,97)	RS1/16SS222J
R 5416	(A,14,93)	RS1/16SS152J
R 5417	(A,21,92)	RS1/16SS473J
R 5418	(A,44,70)	RAB4CQ221J
R 5419	(A,41,70)	RAB4CQ221J
R 5420	(A,35,70)	RAB4CQ221J
R 5421	(A,22,76)	RAB4CQ221J
R 5422	(A,47,71)	RS1/16SS221J
R 5423	(A,46,70)	RS1/16SS221J
R 5424	(A,38,73)	RS1/16SS221J
R 5425	(A,37,73)	RS1/16SS221J
R 5426	(A,33,71)	RS1/16SS221J
R 5427	(A,32,71)	RS1/16SS221J
R 5428	(A,30,72)	RS1/16SS221J
R 5429	(A,28,73)	RS1/16SS221J
R 5430	(A,27,75)	RS1/16SS221J
R 5501	(A,9,106)	RAB4CQ221J

Circuit Symbol and No.		Part No.
R 5503	(A,12,81)	RS1/16S101J
R 5504	(A,17,75)	RS1/16SS681J
R 5506	(A,10,87)	RS1/16S101J
R 5507	(A,13,71)	RS1/16SS472J
R 5508	(A,8,65)	RS1/16S3302D
R 5509	(A,57,64)	RS1/16S6800D
R 5510	(A,11,60)	RS1/16S223J
R 5512	(A,52,64)	RS1/16S27R0D
R 5513	(A,54,64)	RS1/16S10R0D
R 5514	(A,56,63)	RS1/16S1000D
R 5515	(A,59,66)	RS1/16S82R0F
R 5516	(A,58,70)	RS1/16S56R0D
R 5517	(A,57,70)	RS1/16S47R0D
R 5518	(A,56,70)	RS1/16S36R0D
R 5519	(A,54,70)	RS1/16S33R0F
R 5520	(A,53,70)	RS1/16S27R0D
R 5521	(A,51,70)	RS1/16S1800D
R 5522	(A,50,70)	RS1/16S82R0F
R 5523	(A,49,70)	RS1/16S12R0F
R 5524	(A,8,62)	RS1/16S5602D
R 5525	(A,9,60)	RS1/16S101J
R 5526	(A,8,52)	RS1/16SS153J
R 5527	(A,14,52)	RS1/16S153J
R 5528	(A,11,55)	RS1/16SS0R0J
R 5529	(A,12,52)	RS1/16S0R0J
R 5530	(A,32,66)	RS1/16SS102J
R 5531	(A,9,58)	RS1/16S100J
R 5532	(A,11,57)	RS1/16SS100J
R 5533	(A,9,52)	RS1/16S0R0J
R 5534	(A,11,52)	RS1/16S0R0J
R 5601	(A,144,48)	RS1/16S103J
R 5602	(A,144,44)	RS1/16S473J
R 5603	(A,112,50)	RS1/16S103J
R 5604	(A,120,45)	RS1/16S0R0J
R 5605	(A,147,48)	RS1/16S103J
R 5606	(A,147,44)	RS1/16S473J
R 5607	(A,125,46)	RS1/16S124J
R 5608	(A,117,47)	RS1/16S102J
R 5609	(A,109,49)	RS1/16S473J
R 5610	(A,107,51)	RS1/16S221J
R 5611	(A,108,48)	RS1/16S221J
R 5612	(A,110,47)	RS1/16S221J
R 5613	(A,112,53)	RS1/16S471J
R 5614	(A,108,55)	RS1/16S471J
R 5615	(A,108,57)	RS1/16S471J
R 5616	(A,126,50)	RS1/16S471J
R 5617	(A,125,54)	RS1/16S471J
R 5618	(A,127,50)	RS1/16S471J
R 5619	(A,127,54)	RS1/16S471J
R 5620	(A,128,54)	RS1/16S471J
R 5621	(A,130,54)	RS1/16S470J
R 5622	(A,107,60)	RS1/16S0R0J
R 5623	(A,131,52)	RS1/16S470J
R 5624	(A,105,60)	RS1/16S105J
R 5625	(A,105,58)	RS1/16S105J
R 5626	(A,132,58)	RS1/16S471J
R 5627	(A,133,60)	RS1/16S471J
R 5628	(A,136,58)	RS1/16S473J
R 5629	(A,131,62)	RS1/16S221J
R 5630	(A,103,57)	RS1/16S153J
R 5632	(A,103,61)	RS1/16S473J
R 5633	(A,103,60)	RS1/16S473J
R 5634	(A,132,71)	RS1/16S473J
R 5635	(A,102,64)	RS1/16S473J
R 5636	(A,139,71)	RS1/16S473J
R 5637	(A,139,66)	RS1/16S103J
R 5638	(A,131,65)	RS1/16S103J
R 5639	(A,103,75)	RS1/16S471J
R 5640	(A,110,75)	RS1/16S102J
R 5641	(A,117,76)	RAB4CQ102J
R 5642	(A,108,68)	RS1/16S104J
R 5643	(A,112,75)	RS1/16S473J
R 5644	(A,108,71)	RS1/16S103J
R 5646	(A,103,65)	RS1/16S473J
R 5647	(A,140,42)	RS1/16S103J
R 5648	(A,140,40)	RS1/16S821J
R 5649	(A,115,50)	RS1/16S473J
R 5650	(A,113,53)	RS1/16S473J
R 5651	(A,122,52)	RS1/16S473J
R 5652	(A,130,57)	RS1/16S470J
R 5653	(A,133,55)	RS1/16S470J
R 5654	(A,130,70)	RS1/16S473J
R 5655	(A,115,53)	RS1/16S470J
R 5656	(A,131,68)	RS1/16S470J
R 5657	(A,132,62)	RS1/16S221J
R 5658	(A,131,67)	RS1/16S221J
R 5659	(A,131,73)	RS1/16S473J
R 5660	(A,135,71)	RS1/16S221J
R 5668	(A,133,53)	RS1/16S473J
R 5669	(A,136,57)	RS1/16S473J
R 5671	(A,130,73)	RS1/16S470J
R 5701	(A,148,64)	RS1/16S0R0J
R 5702	(A,147,59)	RS1/16S0R0J
R 5703	(A,142,60)	RS1/16S103J
R 5704	(A,142,64)	RS1/16S103J
R 5705	(A,140,60)	RS1/16S103J
R 5706	(A,140,64)	RS1/16S103J
R 5707	(A,145,61)	RS1/16S105J
R 5708	(A,145,65)	RS1/16S105J
R 5709	(A,146,71)	RS1/16S102J
R 5710	(A,146,69)	RS1/16S102J
R 5804	(A,119,101)	RAB4CQ101J
R 5805	(A,106,99)	RS1/16S102J
R 5806	(A,104,97)	RS1/16S102J
R 5807	(A,103,97)	RS1/16S102J
R 5808	(A,124,103)	RS1/16S473J
R 5811	(A,114,103)	RS1/16S471J
R 5812	(A,112,102)	RS1/16S473J
R 5813	(A,148,80)	RS1/16S101J
R 5814	(A,146,108)	RS1/16SS101J
R 5815	(A,146,80)	RS1/16S473J
R 5816	(A,142,80)	RS1/16S101J
R 5817	(A,141,106)	RS1/16SS101J
R 5818	(A,104,87)	RS1/16S1500D
R 5819	(A,104,85)	RS1/16S0R0J
R 5820	(A,127,96)	RAB4CQ101J
R 5821	(A,141,80)	RS1/16S101J
R 5822	(A,102,87)	RS1/16S1500D
R 5823	(A,102,85)	RS1/16S0R0J
R 5824	(A,127,93)	RAB4CQ101J

Circuit Symbol and No.				Part No.
R	5825	(A,140,108)		RS1/16S473J
R	5826	(A,101,87)		RS1/16S1500D
R	5827	(A,101,85)		RS1/16S0R0J
R	5828	(A,139,108)		RS1/16S473J
R	5829	(A,136,78)		RS1/16SS101J
R	5831	(A,137,108)		RS1/16S473J
R	5832	(A,126,88)		RAB4CQ101J
R	5833	(A,105,90)		RS1/16S680J
R	5834	(A,130,79)		RS1/16SS101J
R	5835	(A,136,107)		RS1/16SS101J
R	5836	(A,126,85)		RAB4CQ101J
R	5837	(A,130,80)		RS1/16SS0R0J
R	5838	(A,131,106)		RS1/16SS101J
R	5839	(A,107,85)		RS1/16S1501D
R	5840	(A,130,81)		RS1/16SS0R0J
R	5841	(A,130,82)		RS1/16SS101J
R	5842	(A,125,81)		RS1/16S101J
R	5843	(A,119,80)		RAB4CQ101J
R	5844	(A,115,81)		RAB4CQ101J
R	5845	(A,111,81)		RAB4CQ101J
R	5846	(A,123,81)		RS1/16S470J
R	5847	(A,121,81)		RS1/16S470J
R	5848	(A,124,81)		RS1/16S101J
R	5849	(A,109,101)		RS1/16S0R0J
R	5850	(A,122,103)		RS1/16S473J
R	5852	(A,122,104)		RS1/16S103J
R	5853	(A,145,115)		RS1/16S0R0J
R	5855	(A,11,116)		RS1/16S0R0J
R	5856	(A,122,100)		RS1/16S0R0J
R	5857	(A,143,80)		RS1/16S101J
R	5858	(A,145,80)		RS1/16S101J
R	5859	(A,133,107)		RS1/16SS101J
R	5860	(A,132,108)		RS1/16SS101J
R	5861	(A,131,108)		RS1/16SS101J
R	5862	(A,145,106)		RS1/16SS101J
R	5863	(A,145,108)		RS1/16SS101J
R	5864	(A,144,106)		RS1/16SS101J
R	5865	(A,131,79)		RS1/16SS101J
R	5866	(A,133,80)		RS1/16SS101J
R	5867	(A,133,78)		RS1/16SS101J
R	5868	(A,135,80)		RS1/16SS101J
R	5869	(A,134,78)		RS1/16SS101J
R	5870	(A,134,80)		RS1/16SS101J
R	5871	(A,144,108)		RS1/16SS101J
R	5872	(A,143,106)		RS1/16SS101J
R	5873	(A,142,108)		RS1/16SS101J
R	5874	(A,135,108)		RS1/16SS101J
R	5875	(A,135,107)		RS1/16SS101J
R	5876	(A,134,108)		RS1/16SS101J
R	5878	(A,127,100)		RS1/16S0R0J
R	5901	(A,136,11)		RS1/16S104J
R	5902	(A,134,9)		RS1/16S103J
R	5903	(A,134,8)		RS1/16S0R0J
R	5904	(A,128,8)		RS1/16S0R0J
R	5905	(A,128,6)		RS1/16S822J
R	5931	(A,15,7)		RS1/16S151J
R	5932	(A,18,7)		RS1/16S391J
R	5933	(A,151,7)		RS1/16S151J
R	5934	(A,148,7)		RS1/16S391J
R	5951	(A,15,6)		RS1/16S271J

Circuit Symbol and No.				Part No.
R	5952	(A,18,6)		RS1/16S271J
R	5953	(A,151,6)		RS1/16S271J
R	5954	(A,148,6)		RS1/16S271J
R	5971	(A,84,9)		RS1/16S151J
R	5972	(A,84,6)		RS1/16S391J
R	5981	(A,86,9)		RS1/16S271J
R	5982	(A,86,6)		RS1/16S271J

CAPACITORS

C	5001	(A,121,31)		CKSRYB102K50
C	5002	(A,116,39)		CKSRYB102K50
C	5003	(A,120,39)		CKSRYB102K50
C	5004	(A,121,35)		CKSRYB102K50
C	5101	(A,56,110)		CKSRYB105K16
C	5102	(A,22,110)		CSZS100M10
C	5103	(A,57,110)		CKSRYB105K16
C	5104	(A,76,96)		CKSSYB104K10
C	5105	(A,60,87)		CSZS100M16
C	5106	(A,57,92)		CSZSR220M10
C	5107	(A,79,98)		CSZSR330M10
C	5108	(A,57,97)		CSZSR220M10
C	5109	(A,65,91)		CSZS100M10
C	5110	(A,63,89)		CKSSYB104K10
C	5111	(A,65,103)		CSZS100M10
C	5112	(A,65,104)		CKSSYB104K10
C	5113	(A,70,92)		CKSSYB104K10
C	5114	(A,71,95)		CKSRYB105K16
C	5115	(A,70,97)		CKSSYB104K10
C	5116	(A,71,100)		CKSRYB105K16
C	5117	(A,94,89)		CSZS100M16
C	5118	(A,95,88)		CKSRYB105K16
C	5119	(A,65,86)		CKSRYB104K50
C	5120	(A,20,110)		CSZS100M10
C	5121	(A,73,88)		CKSRYB473K50
C	5122	(A,89,89)	68 μF/6.3 V	CCH1440
C	5123	(A,78,88)		CCSRCH331J50
C	5124	(A,92,90)		CKSRYB104K50
C	5125	(A,70,84)		CKSRYB104K50
C	5126	(A,68,85)		CSZS100M16
C	5127	(A,75,85)		CKSRYB103K50
C	5128	(A,77,85)		CCSRCH101J50
C	5130	(A,78,82)		CKSRYB103K50
C	5131	(A,75,82)		CKSRYB393K50
C	5132	(A,71,84)		CKSRYB393K50
C	5133	(A,93,81)		CKSRYB103K50
C	5134	(A,80,80)		CKSRYB104K50
C	5135	(A,88,80)	10 μF	CCG1223
C	5136	(A,66,78)		CKSRYB393K50
C	5137	(A,91,80)	10 μF	CCG1223
C	5138	(A,78,53)		CKSRYB224K16
C	5139	(A,81,78)		CKSRYB105K16
C	5140	(A,81,77)		CKSRYB102K50
C	5141	(A,91,73)	10 μF	CCG1223
C	5143	(A,88,73)		CKSRYB103K50
C	5144	(A,66,74)		CKSRYB102K50
C	5145	(A,80,75)		CKSRYB104K50
C	5146	(A,65,71)		CKSRYB105K16
C	5147	(A,82,71)		CKSRYB105K16
C	5148	(A,80,71)		CKSRYB103K50

Circuit Symbol and No.			Part No.
C 5149	(A,71,68)		CKSRYB104K50
C 5150	(A,76,60)		CKSYB475K16
C 5151	(A,81,67)		CKSRYB472K50
C 5152	(A,79,67)		CKSRYB472K50
C 5153	(A,96,66)		CKSRYB104K50
C 5154	(A,76,58)		CKSRYB103K50
C 5155	(A,72,66)		CKSRYB104K50
C 5156	(A,71,66)		CKSRYB104K50
C 5157	(A,69,66)		CKSRYB104K50
C 5158	(A,95,68)	33 μF/10 V	CCH1586
C 5159	(A,94,62)		CKSRYB105K16
C 5160	(A,81,61)		CKSRYB104K50
C 5161	(A,83,61)		CKSQYF105Z25
C 5163	(A,70,60)		CKSQYF105Z25
C 5164	(A,68,60)		CKSQYF105Z25
C 5165	(A,66,60)		CKSQYF225Z16
C 5166	(A,64,60)		CKSQYF225Z16
C 5167	(A,84,68)		CKSRYB105K16
C 5168	(A,68,66)		CKSRYB105K16
C 5169	(A,83,58)		CKSQYF105Z25
C 5170	(A,62,60)		CKSQYF105Z25
C 5201	(A,80,30)	10 μF	CCG1223
C 5202	(A,80,34)	10 μF	CCG1223
C 5204	(A,64,27)		CKSRYB104K50
C 5205	(A,60,30)		CKSRYB105K16
C 5206	(A,57,43)		CKSRYB104K50
C 5207	(A,50,29)		CKSRYB104K50
C 5208	(A,50,33)		CKSRYB104K50
C 5209	(A,50,27)		CKSRYB105K16
C 5211	(A,50,30)		CKSRYB474K16
C 5212	(A,50,34)		CKSRYB332K50
C 5213	(A,50,32)		CKSRYB105K16
C 5214	(A,51,37)		CKSRYB152K50
C 5215	(A,59,35)		CKSRYB104K50
C 5216	(A,53,29)		CKSRYB103K50
C 5217	(A,39,33)		CKSRYB473K50
C 5218	(A,38,28)		CKSRYB473K50
C 5219	(A,38,30)		CCSRCH221J50
C 5220	(A,42,24)	10 μF	CCG1223
C 5221	(A,43,13)	10 μF	CCG1223
C 5222	(A,35,12)		CKSRYB105K16
C 5223	(A,35,13)		CKSRYB105K16
C 5224	(A,61,15)		CKSRYB104K50
C 5225	(B,72,10)	22 pF	CCG1140
C 5226	(A,67,7)		CKSRYB223K50
C 5301	(A,74,112)	10 μF	CCG1171
C 5302	(A,69,110)		CCSRCH470J50
C 5303	(A,67,109)		CCSRCH680J50
C 5304	(A,65,114)		CCSRCH5R0C50
C 5305	(A,65,109)		CCSRCH470J50
C 5306	(A,61,109)		CKSRYB104K50
C 5307	(A,62,106)		CSZSR330M10
C 5308	(A,85,110)	10 μF	CCG1171
C 5309	(A,85,108)	10 μF	CCG1171
C 5310	(A,78,110)		CKSRYB104K50
C 5401	(A,46,110)		CCSSCH9R0D50
C 5402	(A,44,110)		CCSSCH9R0D50
C 5403	(A,41,110)		CKSSYB104K10
C 5404	(A,32,110)		CKSSYB104K10
C 5405	(A,30,110)		CKSSYB104K10

Circuit Symbol and No.		Part No.
C 5406	(A,29,110)	CKSSYB104K10
C 5407	(A,38,110)	CCSSCH4R0C50
C 5410	(A,49,108)	CKSSYB104K10
C 5411	(A,46,108)	CKSSYB104K10
C 5412	(A,42,108)	CKSSYB104K10
C 5413	(A,40,111)	CKSSYB103K16
C 5414	(A,41,108)	CCSSCH181J25
C 5415	(A,40,108)	CKSSYB104K10
C 5416	(A,38,108)	CKSSYB104K10
C 5417	(A,27,112)	CKSSYB104K10
C 5418	(A,26,113)	CKSSYB104K10
C 5419	(A,37,108)	CKSSYB104K10
C 5420	(A,36,108)	CKSSYB104K10
C 5421	(A,25,113)	CKSSYB104K10
C 5422	(A,24,113)	CKSSYB104K10
C 5423	(A,34,108)	CKSSYB104K10
C 5424	(A,16,106)	CKSSYB104K10
C 5425	(A,18,108)	CKSSYB104K10
C 5426	(A,18,105)	CKSSYB104K10
C 5427	(A,19,106)	CKSSYB104K10
C 5428	(A,32,108)	CKSSYB104K10
C 5429	(A,28,109)	CKSSYB104K10
C 5430	(A,27,109)	CKSSYB104K10
C 5431	(A,28,108)	CKSSYB104K10
C 5432	(A,26,108)	CKSSYB104K10
C 5433	(A,24,108)	CKSSYB104K10
C 5434	(A,52,105)	CKSSYB104K10
C 5435	(A,52,103)	CKSSYB104K10
C 5436	(A,22,104)	CKSSYB104K10
C 5437	(A,19,99)	CKSSYB104K10
C 5438	(A,52,100)	CKSSYB104K10
C 5439	(A,22,98)	CKSSYB104K10
C 5440	(A,52,98)	CKSSYB104K10
C 5441	(A,21,96)	CKSSYB104K10
C 5442	(A,52,94)	CKSSYB104K10
C 5443	(A,19,94)	CKSSYB104K10
C 5444	(A,21,93)	CKSSYB104K10
C 5445	(A,52,92)	CKSSYB104K10
C 5447	(A,21,90)	CKSSYB104K10
C 5448	(A,21,88)	CKSSYB104K10
C 5449	(A,52,88)	CKSSYB104K10
C 5450	(A,52,86)	CKSSYB104K10
C 5451	(A,21,87)	CKSSYB104K10
C 5453	(A,21,86)	CKSSYB104K10
C 5454	(A,22,84)	CKSSYB104K10
C 5455	(A,22,82)	CKSSYB104K10
C 5456	(A,52,82)	CKSSYB104K10
C 5457	(A,21,80)	CKSRYB105K16
C 5458	(A,50,77)	CKSSYB104K10
C 5459	(A,43,76)	CKSSYB104K10
C 5460	(A,42,77)	CKSSYB104K10
C 5461	(A,40,77)	CKSSYB104K10
C 5462	(A,36,77)	CKSSYB104K10
C 5463	(A,31,77)	CKSSYB104K10
C 5464	(A,30,77)	CKSSYB104K10
C 5465	(A,48,77)	CKSSYB104K10
C 5466	(A,52,75)	CSZSR330M10
C 5467	(A,50,108)	CKSSYB104K10
C 5468	(A,10,116)	CKSRYB104K50
C 5469	(A,17,103)	CKSRYB104K50

Circuit Symbol and No.		Part No.
C 5503	(A,14,100)	CSZS100M16
C 5505	(A,11,77)	CKSSYB104K10
C 5507	(A,11,87)	CKSSYB104K10
C 5508	(A,13,76)	CKSRYB105K16
C 5509	(A,58,82)	CKSSYB104K10
C 5510	(A,14,71)	CKSRYB105K16
C 5511	(A,8,70)	CKSSYB104K10
C 5512	(A,13,61)	CKSRYB104K50
C 5513	(A,10,72)	CSZSR220M16
C 5514	(A,8,79) 4.7 µF	CCG1111
C 5515	(A,8,67)	CKSRYB105K16
C 5516	(A,61,74)	CKSSYB104K10
C 5517	(A,62,77)	CSZS100M16
C 5518	(A,12,60)	CKSRYB104K50
C 5519	(A,27,72)	CKSSYB104K10
C 5520	(A,25,72)	CKSSYB104K10
C 5521	(A,20,74)	CKSRYB104K50
C 5522	(A,14,68)	CKSRYB104K50
C 5523	(A,29,67)	CSZSR220M16
C 5524	(A,24,69)	CSZS100M16
C 5525	(A,21,67)	CKSQYF334Z25
C 5526	(A,16,68) 4.7 µF	CCG1111
C 5527	(A,30,65)	CKSSYB104K10
C 5528	(A,26,65)	CKSSYB104K10
C 5529	(A,22,65)	CKSRYB104K50
C 5530	(A,19,67)	CKSRYB104K50
C 5602	(A,119,47)	CKSRYB105K16
C 5603	(A,136,44)	CSZSC101M10
C 5604	(A,120,55)	CKSRYB104K50
C 5605	(A,108,62)	CKSRYB104K50
C 5606	(A,136,61)	CKSSYB104K10
C 5607	(A,121,75)	CKSRYB104K50
C 5608	(A,101,69)	CKSRYB104K50
C 5609	(A,130,43)	CKSRYB104K50
C 5610	(A,132,41)	CSZSC101M10
C 5701	(A,139,62)	CKSSYB102K50
C 5702	(A,147,62)	CKSSYB102K50
C 5703	(A,145,67)	CKSSYB102K50
C 5704	(A,148,69)	CKSSYB472K25
C 5705	(A,147,67)	CKSSYB472K25
C 5801	(A,102,81)	CSZSR330M10
C 5802	(A,143,55)	CSZSC101M10
C 5803	(A,139,55)	CKSRYB105K16
C 5804	(A,104,79)	CKSRYB105K16
C 5805	(A,107,81)	CSZSR330M10
C 5808	(A,105,82)	CKSRYB105K16
C 5809	(A,111,100)	CKSSYB104K10
C 5810	(A,138,80)	CKSRYB105K16
C 5811	(A,106,88)	CKSRYB105K16
C 5812	(A,106,85)	CKSSYB104K10
C 5813	(A,113,81)	CKSSYB104K10
C 5814	(A,119,82)	CKSSYB104K10
C 5815	(A,145,75)	CKSYB105K16
C 5816	(A,137,53)	CKSYB105K16
C 5824	(A,101,100)	CCSRCH101J50
C 5825	(A,146,115)	CKSRYB105K10
C 5901	(A,137,6) 4.7 µF	CCG1201
C 5903	(A,119,8)	CKSRYB104K50
C 5931	(A,24,9)	CKSRYB104K50
C 5932	(A,9,9)	CKSRYB104K50

Circuit Symbol and No.		Part No.
C 5933	(A,142,9)	CKSRYB104K50
C 5934	(A,156,9)	CKSRYB104K50
C 5971	(A,77,12)	CKSRYB104K50
C 5972	(A,89,12)	CKSRYB104K50

D

Unit Number : YWX5005
Unit Name : DVD Core Unit

MISCELLANEOUS

IC 1003	(B,72,42)	IC	S-80859CNNB-B9K
IC 1004	(B,75,48)	Regulator IC	NJM2880U1-05
IC 1005	(B,61,58)	IC	S-L2980A50MC-C7J
IC 1007	(B,82,54)	IC	NJM2885DL1-33
IC 1008	(B,80,63)	IC	R1232D121B
IC 1201	(A,26,15)	IC	BD7996EFV
IC 1301	(B,90,27)	IC	TC7SZ125FU
IC 1351	(B,86,27)	IC	TC7SZ08FU
IC 1352	(B,79,13)	IC	TC74LCX16373FT
IC 1401	(B,61,32)	Flash ROM Unit	CWW1434
IC 1402	(B,37,10)	Flash ROM Unit	CWW1435
IC 1403	(B,47,29)	IC	TC7SZ32FU
IC 1481	(B,60,12)	IC	EDS1232AATA-75
IC 1501	(A,60,19)	IC	MN2DS0016AAUB
IC 1801	(A,70,52)	D/A Converter	PCM1753DBQ
Q 1101	(B,62,50)	Transistor	2SC4081
Q 1102	(B,68,50)	Transistor	2SC4081
Q 1103	(B,60,45)	Transistor	2SB1260
Q 1104	(B,66,45)	Transistor	2SB1260
D 1002	(A,88,66)	Diode	1SR154-400
D 1301	(B,12,10)	Chip LED	CL205IRXTU
L 1004	(B,63,60)	Inductor	CTF1472
L 1005	(B,81,49)	Inductor	CTF1465
L 1006	(B,86,64)	Inductor	CTF1678
L 1007	(B,74,63)	Inductor	CTF1623
L 1101	(B,66,54)	Inductor	CTF1305
L 1482	(B,77,29)	Inductor	CTF1473
L 1502	(A,71,46)	Inductor	CTF1378
L 1503	(A,60,47)	Inductor	CTF1487
L 1504	(A,35,10)	Inductor	CTF1387
L 1511	(A,63,3)	Inductor	CTF1680
L 1601	(A,41,23)	Inductor	CTF1473
L 1602	(A,55,42)	Inductor	CTF1473
L 1603	(A,54,42)	Inductor	CTF1473
L 1604	(A,52,42)	Inductor	CTF1473
L 1605	(A,38,32)	Inductor	CTF1395
L 1671	(A,41,19)	Inductor	CTF1473
L 1672	(A,41,20)	Inductor	CTF1473
L 1673	(A,41,21)	Inductor	CTF1473
L 1801	(A,70,61)	Inductor	CTF1473
L 1901	(A,91,73)	Inductor	CTF1487
L 1902	(A,91,62)	Inductor	CTF1558
X 1501	(A,40,15)	Crystal 27.000 MHz	CSS1714
VR1671	(A,35,20)	Semi-fixed 10 kΩ(B)	CCP1448
EF1501	(A,68,46)	EMI Filter	DTL1106
EF1502	(A,61,44)	EMI Filter	DTL1106
EF1901	(A,87,74)	EMI Filter	DTF1106
EF1903	(A,91,64)	EMI Filter	DTL1106

RESISTORS

Circuit Symbol and No.		Part No.
R 1011	(B,72,40)	RS1/16SS104J
R 1014	(B,82,61)	RS1/16SS473J
R 1015	(B,76,60)	RS1/16SS101J
R 1101	(B,63,52)	RS1/16SS391J
R 1102	(B,62,47)	RS1/16SS511J
R 1103	(B,67,53)	RS1/16SS391J
R 1104	(B,69,47)	RS1/16SS561J
R 1107	(B,61,53)	RS1/16SS6R8J
R 1108	(B,65,53)	RS1/16SS6R8J
R 1109	(B,57,40)	RS1/10S1R5J
R 1110	(B,63,40)	RS1/10S1R5J
R 1111	(B,70,40)	RS1/10S1R5J
R 1112	(B,64,40)	RS1/10S1R5J
R 1113	(B,61,40)	RS1/10S1R5J
R 1114	(B,59,40)	RS1/10S1R5J
R 1115	(B,66,40)	RS1/10S1R5J
R 1116	(B,68,40)	RS1/10S1R5J
R 1117	(B,64,49)	RS1/16SS104J
R 1118	(B,70,49)	RS1/16SS104J
R 1202	(A,19,12)	RS1/16SS221J
R 1203	(A,19,11)	RS1/16SS221J
R 1210	(A,30,27)	RS1/16SS101J
R 1211	(B,26,18)	RS1/16SS3R9J
R 1212	(B,27,18)	RS1/16SS3R9J
R 1214	(B,28,18)	RS1/16SS3R9J
R 1215	(B,29,18)	RS1/16SS3R9J
R 1216	(B,30,18)	RS1/16SS3R9J
R 1217	(B,31,18)	RS1/16SS3R9J
R 1219	(A,20,27)	RS1/16SS101J
R 1223	(A,19,4)	RS1/16SS753J
R 1225	(A,19,7)	RS1/16SS753J
R 1227	(B,13,21)	RS1/16SS3R9J
R 1228	(B,14,21)	RS1/16SS3R9J
R 1229	(B,15,21)	RS1/16SS3R9J
R 1230	(B,16,21)	RS1/16SS3R9J
R 1231	(B,17,21)	RS1/16SS3R9J
R 1232	(B,18,21)	RS1/16SS3R9J
R 1233	(B,19,21)	RS1/16SS3R9J
R 1234	(B,20,21)	RS1/16SS3R9J
R 1240	(B,32,18)	RS1/16SS3R9J
R 1241	(B,33,18)	RS1/16SS3R9J
R 1242	(B,34,18)	RS1/16SS3R9J
R 1243	(B,37,18)	RS1/16SS3R9J
R 1244	(B,36,18)	RS1/16SS3R9J
R 1245	(B,35,18)	RS1/16SS3R9J
R 1301	(B,13,13)	RS1/16SS391J
R 1302	(B,15,13)	RS1/16SS471J
R 1304	(B,87,23)	RS1/16SS563J
R 1305	(B,86,23)	RS1/16SS243J
R 1306	(B,85,23)	RS1/16SS683J
R 1307	(B,88,23)	RS1/16SS243J
R 1314	(B,86,21)	RAB4CQ822J
R 1351	(B,84,25)	RS1/16SS331J
R 1401	(B,72,33)	RS1/16SS221J
R 1402	(B,50,27)	RS1/16SS104J
R 1405	(B,48,10)	RS1/16SS221J
R 1406	(B,25,4)	RS1/16SS104J
R 1407	(B,25,6)	RS1/16SS104J
R 1410	(B,47,31)	RS1/16SS104J
R 1501	(B,71,3)	RAB4CQ560J

Circuit Symbol and No.		Part No.
R 1502	(A,85,3)	RS1/16SS104J
R 1503	(A,71,2)	RS1/16SS560J
R 1504	(A,87,23)	RAB4CQ104J
R 1505	(B,68,3)	RAB4CQ560J
R 1506	(A,87,19)	RAB4CQ104J
R 1507	(B,65,3)	RAB4CQ560J
R 1508	(A,86,16)	RAB4CQ104J
R 1509	(A,86,12)	RAB4CQ104J
R 1510	(A,78,11)	RAB4CQ104J
R 1511	(A,88,4)	RS1/16SS104J
R 1512	(B,59,3)	RAB4CQ560J
R 1513	(A,44,4)	RS1/16SS102J
R 1514	(A,80,7)	RAB4CQ104J
R 1515	(A,43,3)	RS1/16SS102J
R 1516	(A,76,8)	RS1/16SS103J
R 1518	(A,85,5)	RS1/16SS104J
R 1520	(A,35,8)	RS1/16SS221J
R 1521	(A,41,11)	RAB4CQ101J
R 1522	(B,56,3)	RAB4CQ560J
R 1523	(A,39,11)	RS1/16SS101J
R 1524	(A,39,12)	RS1/16SS101J
R 1525	(B,53,3)	RAB4CQ560J
R 1526	(A,36,10)	RS1/16SS270J
R 1528	(A,43,14)	RS1/16SS101J
R 1529	(B,53,22)	RAB4CQ560J
R 1530	(A,43,15)	RS1/16SS105J
R 1531	(B,50,22)	RAB4CQ560J
R 1532	(A,77,22)	RS1/16SS103J
R 1533	(A,76,27)	RS1/16SS103J
R 1534	(A,77,26)	RS1/16SS103J
R 1535	(A,63,36)	RS1/16SS221J
R 1537	(A,67,40)	RS1/16SS221J
R 1538	(A,66,41)	RS1/16SS221J
R 1540	(A,70,43)	RS1/16SS102J
R 1541	(A,64,41)	RS1/16SS472J
R 1542	(A,60,36)	RS1/16SS223J
R 1543	(A,59,37)	RS1/16SS332J
R 1544	(A,57,41)	RS1/16SS183J
R 1545	(A,61,36)	RS1/16SS223J
R 1546	(A,59,42)	RS1/16SS104J
R 1547	(A,59,41)	RS1/16SS473J
R 1548	(A,59,36)	RS1/16SS104J
R 1554	(A,60,39)	RS1/16SS221J
R 1555	(A,57,38)	RS1/16SS221J
R 1556	(A,43,7)	RS1/16SS104J
R 1557	(A,57,39)	RS1/16SS104J
R 1559	(A,63,41)	RS1/16SS221J
R 1560	(A,68,42)	RAB4CQ104J
R 1562	(A,64,38)	RAB4CQ104J
R 1565	(A,73,36)	RS1/16SS103J
R 1566	(A,72,36)	RS1/16SS103J
R 1567	(B,68,22)	RAB4CQ560J
R 1568	(B,65,22)	RAB4CQ560J
R 1569	(B,62,3)	RAB4CQ560J
R 1570	(B,60,22)	RAB4CQ560J
R 1571	(B,57,22)	RAB4CQ560J
R 1573	(B,63,19)	RS1/16SS560J
R 1582	(A,81,25)	RS1/16SS103J
R 1583	(A,81,27)	RS1/16SS103J
R 1584	(A,77,28)	RS1/16SS103J

Circuit Symbol and No.			Part No.
R 1601	(A,41,25)		RS1/16SS123J
R 1602	(A,39,24)		RS1/16SS123J
R 1607	(A,41,27)		RS1/16SS105J
R 1609	(A,37,28)		RN1/16SE1002D
R 1610	(A,43,28)		RS1/16SS222J
R 1613	(A,39,28)		RS1/16SS223J
R 1614	(A,46,35)		RS1/16SS105J
R 1615	(A,43,32)		RS1/16SS105J
R 1616	(A,53,36)		RS1/16SS2002D
R 1672	(A,43,21)		RS1/16SS303J
R 1673	(A,37,22)		RS1/16SS183J
R 1674	(A,34,23)		RS1/16SS562J
R 1705	(A,55,57)		RS1/16SS101J
R 1706	(A,52,56)		RS1/16SS201J
R 1707	(A,55,51)		RS1/16SS101J
R 1708	(A,52,50)		RS1/16SS201J
R 1715	(A,60,56)		RS1/16SS201J
R 1716	(A,62,57)		RS1/16SS101J
R 1719	(A,60,50)		RS1/16SS201J
R 1720	(A,62,51)		RS1/16SS101J
R 1803	(A,72,56)		RS1/16SS821J
R 1804	(A,74,56)		RS1/16SS821J
R 1805	(A,72,61)		RS1/16SS104J
R 1806	(A,74,61)		RS1/16SS104J
R 1903	(A,89,52)		RS1/16SS0R0J
R 1904	(A,90,59)		RS1/16S0R0J

CAPACITORS

Circuit Symbol and No.			Part No.
C 1019	(B,58,59)		CCSSCH101J50
C 1020	(B,58,57)		CKSSYB104K10
C 1021	(B,60,60)		CKSRYB105K10
C 1022	(B,79,47)		CKSSYB103K16
C 1023	(B,79,49)		CKSSYB104K10
C 1024	(B,71,48)		CKSQYB475K10
C 1025	(B,64,58)		CKSRYB105K10
C 1026	(B,12,19)		CKSSYB104K10
C 1027	(A,90,53)		CCSSCH101J50
C 1028	(B,89,56)		CKSRYB105K10
C 1029	(B,89,52)		CKSQYB225K10
C 1030	(B,84,59)		CKSQYB106K6R3
C 1031	(B,85,59)		CKSQYB106K6R3
C 1032	(B,82,59)		CKSRYB105K10
C 1033	(B,73,59)		CKSQYB106K6R3
C 1034	(B,73,57)		CKSQYB106K6R3
C 1035	(B,45,27)		CCSSCH101J50
C 1101	(B,61,54)	10 µF	CCG1192
C 1102	(B,58,50)	100 µF	CCG1232
C 1103	(B,65,50)	100 µF	CCG1232
C 1104	(B,63,43)		CKSSYB104K10
C 1105	(B,70,43)		CKSSYB104K10
C 1106	(B,63,45)		CKSSYB103K16
C 1107	(B,70,45)		CKSSYB103K16
C 1108	(A,35,36)		CKSSYB103K16
C 1109	(A,36,33)		CKSRYB105K10
C 1110	(A,35,37)		CKSSYB103K16
C 1111	(A,39,33)		CKSRYB105K10
C 1201	(B,21,11)		CEVW101M16
C 1202	(B,15,17)		CKSYB475K16
C 1207	(B,16,10)		CKSQYB225K10
C 1209	(A,32,17)		CKSSYB104K10
C 1210	(A,32,19)		CKSSYB471K50
C 1211	(A,19,16)		CKSSYB103K16
C 1212	(A,19,8)		CKSSYB104K10
C 1213	(A,19,9)		CKSSYB104K10
C 1301	(B,90,25)		CKSSYB104K10
C 1302	(B,88,25)		CKSSYB104K10
C 1351	(B,86,25)		CKSSYB104K10
C 1352	(B,75,19)		CKSSYB104K10
C 1353	(B,81,19)		CKSSYB104K10
C 1354	(B,74,7)		CKSSYB104K10
C 1355	(B,85,8)		CKSSYB104K10
C 1356	(B,83,28)		CKSYB106K6R3
C 1401	(B,72,31)		CKSSYB103K16
C 1402	(B,49,33)		CKSSYB104K10
C 1403	(B,81,27)		CKSQYB475K6R3
C 1405	(B,48,8)		CKSSYB103K16
C 1406	(B,25,15)		CKSSYB104K10
C 1407	(B,74,27)		CKSQYB475K6R3
C 1408	(B,47,27)		CKSSYB104K10
C 1481	(B,72,5)		CKSSYB104K10
C 1482	(B,72,7)		CKSSYB104K10
C 1483	(B,67,5)		CKSSYB104K10
C 1484	(B,63,5)		CKSSYB104K10
C 1485	(B,56,5)		CKSSYB104K10
C 1486	(B,53,5)		CKSSYB104K10
C 1487	(B,51,5)		CKSSYB104K10
C 1488	(B,49,5)		CKSSYB104K10
C 1490	(B,68,19)		CKSSYB104K10
C 1491	(B,77,27)		CKSQYB106K6R3
C 1492	(B,55,19)		CKSSYB104K10
C 1493	(B,52,19)		CKSSYB104K10
C 1494	(B,65,19)		CKSSYB104K10
C 1496	(B,65,5)		CKSSYB102K50
C 1497	(B,61,19)		CKSSYB102K50
C 1498	(B,77,26)		CKSSYB102K50
C 1499	(B,49,4)		CKSSYB102K50
C 1501	(A,68,44)		CKSQYB106K6R3
C 1502	(A,58,43)		CKSQYB106K6R3
C 1503	(A,55,3)		CKSSYB104K10
C 1504	(A,58,3)		CKSSYB104K10
C 1505	(A,53,3)		CKSSYB104K10
C 1506	(A,60,3)		CKSSYB104K10
C 1507	(A,68,2)		CKSSYB104K10
C 1508	(A,65,3)		CKSSYB104K10
C 1509	(A,69,2)		CKSSYB104K10
C 1510	(A,43,11)		CKSSYB104K10
C 1511	(A,76,7)		CKSSYB104K10
C 1512	(A,76,11)		CKSSYB104K10
C 1513	(A,43,10)		CKSSYB104K10
C 1514	(A,76,17)		CKSSYB104K10
C 1515	(A,43,16)		CKSSYB104K10
C 1516	(A,76,15)		CKSSYB104K10
C 1517	(A,43,17)		CKSSYB104K10
C 1518	(A,37,14)		CCSSCH8R0D50
C 1519	(A,37,16)		CCSSCH8R0D50
C 1521	(A,76,24)		CKSSYB104K10
C 1522	(A,77,24)		CKSSYB104K10
C 1523	(A,58,36)		CKSSYB104K10

Circuit Symbol and No.			Part No.
C 1524	(A,57,37)		CKSSYB103K16
C 1525	(A,66,36)		CKSSYB104K10
C 1526	(A,62,40)		CKSSYB103K16
C 1527	(A,63,35)		CKSSYB471K50
C 1528	(A,65,36)		CKSSYB104K10
C 1529	(A,60,38)		CKSSYB103K16
C 1530	(A,59,39)		CKSSYB224K6R3
C 1531	(A,57,42)		CKSSYB123K16
C 1536	(A,76,20)		CKSSYB104K10
C 1537	(A,55,43)		CKSSYB102K50
C 1538	(A,53,43)		CKSSYB102K50
C 1539	(A,57,36)		CKSSYB104K10
C 1540	(A,61,38)		CKSSYB103K16
C 1560	(A,51,3)		CKSSYB104K10
C 1577	(A,77,30)		CKSSYB104K10
C 1601	(A,41,24)		CCSSCH101J50
C 1602	(A,43,24)		CCSSCH101J50
C 1603	(A,37,23)		CCSSCH680J50
C 1604	(A,39,25)		CCSSCH680J50
C 1608	(A,41,26)		CKSSYB103K16
C 1609	(A,43,26)		CKSSYB103K16
C 1610	(A,53,39)		CCSSCH101J50
C 1611	(A,53,37)		CKSSYB562K25
C 1612	(A,55,36)		CKSSYB224K6R3
C 1613	(A,55,37)		CKSSYB224K6R3
C 1614	(A,56,37)		CKSSYB333K16
C 1615	(A,41,30)		CKSRYB105K10
C 1616	(A,48,36)		CKSSYB104K10
C 1617	(A,49,38)		CKSSYB104K10
C 1618	(A,51,38)		CKSSYB104K10
C 1619	(A,51,36)		CKSSYB104K10
C 1620	(A,50,36)		CKSSYB104K10
C 1621	(A,50,38)		CKSSYB104K10
C 1622	(A,52,38)		CKSSYB104K10
C 1623	(A,52,39)		CKSSYB104K10
C 1624	(A,43,27)		CKSSYB103K16
C 1625	(A,56,36)		CKSSYB104K10
C 1626	(A,41,31)		CKSRYB105K10
C 1627	(A,43,23)		CKSSYB104K10
C 1628	(A,54,36)		CKSSYB104K10
C 1629	(A,49,36)		CKSSYB104K10
C 1630	(A,38,30)		CKSQYB106K6R3
C 1671	(A,43,18)		CKSSYB104K10
C 1672	(A,43,19)		CKSSYB104K10
C 1673	(A,37,21)		CKSSYB104K10
C 1674	(A,39,21)		CKSSYB104K10
C 1675	(A,39,19)		CKSRYB105K10
C 1676	(A,37,19)		CKSRYB105K10
C 1677	(A,43,22)		CKSSYB104K10
C 1801	(A,74,52)		CKSSYB104K10
C 1802	(A,67,58)	10 µF	CCG1192
C 1803	(A,67,56)		CKSSYB104K10
C 1804	(A,69,58)	10 µF	CCG1192
C 1805	(A,69,56)		CKSSYB104K10
C 1808	(A,72,57)		CCSRCH182J50
C 1809	(A,75,57)		CCSRCH182J50
C 1810	(A,72,59)		CKSQYB475K6R3
C 1811	(A,74,59)		CKSQYB475K6R3
C 1901	(A,84,74)		CKSSYB102K50

E

Unit Number : CWX3154
Unit Name : Compound Unit(A)

Circuit Symbol and No.		Part No.
Q 1299	Photo-taransistor	CPT231SCTD
S 1201	Spring Switch(12cm)	CSN1069
S 1202	Spring Switch(8cm)	CSN1069
S 1203	Spring Switch(DISC SENS)	CSN1069
S 1204	Spring Switch(DISC SENS)	CSN1070
S 1205	Spring Switch(8cm)	CSN1070
R 1298		RS1/16S0R0J
R 1299		RS1/16S0R0J

F

Unit Number : CWX3394
Unit Name : Compound Unit(B)

Circuit Symbol and No.		Part No.
S 1206	Switch(CLAMP)	CSN1067

OPT/RCA Unit
Consists of
OPT PCB
RCA PCB

G I

Unit Number :
Unit Name : OPT/RCA Unit

MISCELLANEOUS

Circuit Symbol and No.			Part No.
IC 4201	(A,35,16)	L-MOS And Gate	TC7SET08FUS1
D 4201	(A,42,16)	Diode	UDZS5R6(B)
D 4202	(A,42,11)	Diode	UDZS5R6(B)
L 4201	(A,28,14)	Inductor	CTF1379
L 4202	(A,59,24)	Inductor	CTF1389

RESISTORS

Circuit Symbol and No.		Part No.
R 4201	(A,24,14)	RS1/16S0R0J
R 4203	(A,25,17)	RS1/16S221J
R 4204	(A,28,17)	RS1/16S621J
R 4205	(A,31,16)	RS1/16S473J
R 4206	(A,32,13)	RS1/16S0R0J
R 4207	(A,38,16)	RS1/16S121J
R 4211	(A,68,6)	RS1/16S0R0J

CAPACITORS

Circuit Symbol and No.		Part No.
C 4202	(A,28,16)	CCSRCH150J50
C 4203	(A,37,18)	CKSRYB104K50
C 4204	(A,38,13)	CKSYB106K10
C 4207	(A,62,16)	CKSRYB104K50
C 4301	(A,17,13)	CKSRYB102K50

K

Unit Number : CXX2316
Unit Name : Main PCB Unit(SERVICE)

MISCELLANEOUS

IC 101	IC	BA00CC0WFP
IC 102	IC	BA6247FP
IC 103	Photo-interrupter	GP2L24B
IC 104	IC	TC7W14FU
IC 105	Photo-interrupter	GP2L24B
Q 101	Transistor	DTC124EUA
D 101	Diode	UDZS5R6(B)

RESISTORS

R 101	RS1/16S102J
R 102	RS1/16S3302D
R 103	RS1/16S3900D
R 104	RS1/16S4701D
R 105	RS1/16S471J
R 106	RS1/16S102J
R 107	RS1/16S102J
R 108	RS1/16S102J
R 109	RS1/16S102J
R 110	RS1/16S102J
R 111	RS1/16S562J
R 112	RS1/16S102J
R 113	RS1/16S102J
R 114	RS1/16S102J
R 115	RS1/16S562J
R 116	RS1/16S102J
R 117	RS1/16S472J

CAPACITORS

C 101	CKSYB475K16
C 102	CKSYB475K16
C 103	CKSRYB104K16
C 104	CKSRYB104K16
C 105	CKSRYB223K16
C 106	CKSRYB104K16
C 107	CKSRYB223K16
C 108	CEVW101M16
C 109	CKSRYB104K16
C 110	CCSRCH102J50
C 111	CCSRCH102J50

L

Unit Number : CZW5029
Unit Name : Switch PCB Unit

S 101	Switch(Angel sw)	CSN1068

M

Unit Number : CZW5028
Unit Name : Volume PCB Unit

VR101	Volume(Angel sense)	CCW1025

Miscellaneous Parts List

	Pickup Unit(Service)	CXX2118
M 1	Motor Unit(LOADING)	CXC4912
M 2	Motor(STEPPING)	CXM1364
M 3	Motor(SPINDLE)	CXM1362

Pioneer sound.vision.soul

Service Manual

ORDER NO.
CRT3896

DVD MECHANISM MODULE(MS5)

CX-3212

● This service manual describes the operation of the DVD mechanism module incorporated in models listed in the table below.
● When performing repairs use this manual together with the specific manual for model under repair.

Model	Service manual	DVD Mechanism Module
AVIC-D3/XU/UC AVIC-D3/XU/EW5	CRT3879	CXK6601

CONTENTS

1. CIRCUIT DESCRIPTIONS........2
2. MECHANISM DESCRIPTIONS........19
3. DISASSEMBLY........24

PIONEER CORPORATION 4-1, Meguro 1-chome, Meguro-ku, Tokyo 153-8654, Japan
PIONEER ELECTRONICS (USA) INC. P.O. Box 1760, Long Beach, CA 90801-1760, U.S.A.
PIONEER EUROPE NV Haven 1087, Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE. LTD. 253 Alexandra Road, #04-01, Singapore 159936

©PIONEER CORPORATION 2007

K-ZZU. FEB. 2007 Printed in Japan

1. CIRCUIT DESCRIPTIONS

1. Front end section (MN2DS0016AAUB : IC1501)

MN2DS0016AAUB is a 1 chip LSI for DVD-Player. A DVD-Player system can be constructed by connecting this LSI, driver IC, SDRAM, Flash-ROM, Audio-DAC, etc.

This LSI includes a front end (SODC/FE) which executes RF signal processing, servo processing and decode processing, a back end (AV decoder/BE) which executes video decode processing such as MPEG1/MPEG2/JPEG and audio decode processing such as DVD-Audio/Dolby Digital^2 /DTS/MP3, and a system controller which controls the system.

The front end section realizes optical head signal computation processing and RF signal processing, digital signal processing (16-8 demodulation, error correction) for DVD-ROM playback according to the DVD specifications, digital signal processing of CD-DA/CD-ROM (error correction), AV decoder transfer, servo control, spindle motor control and seek control.

In the case of MN2DS0016AAUB, the front end servo system waveforms, such as FE, TE and AS, are not observed as in the case of DVD mechanism module (MS4) CX-3183. Please pay attention.

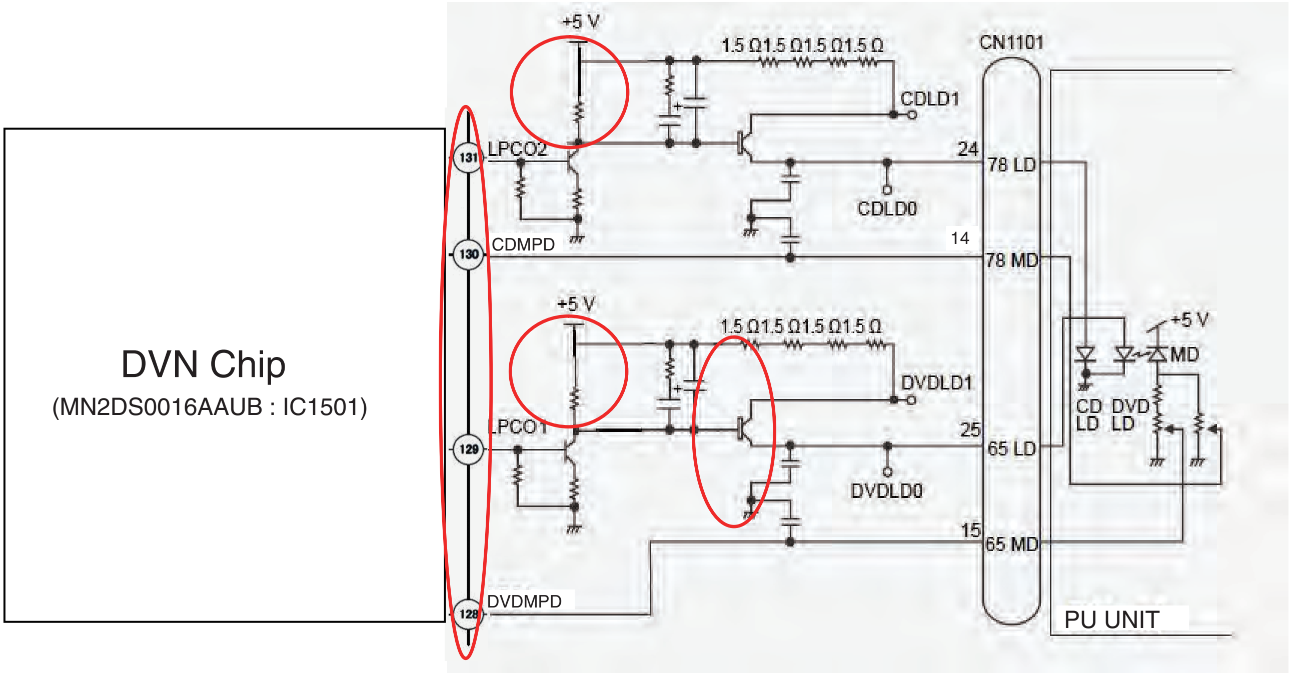
1.1 Analog block (MN2DS0016AAUB : IC1501)

The functions of the analog block are as described below.

1. Reference power circuit
2. SERVO system/DPD system signal processing circuit
   Gain switching amplifier and Low Pass Filter (LPF)
3. RF signal processing circuit
   RF adding circuit, circuit to make inline, Variable Gain Amplifier (VGA) circuit
4. Laser power control (LPC) circuit
5. A/D converter for SERVO (10 bit, DPD system-4ch), PWM

1.1.1 APC circuit

The optical output of the laser diode (LD) has a large negative temperature characteristic.
Therefore, if the LD is driven by a constant current, a constant optical output cannot be obtained.
APC circuit is a circuit to control the current so that the output at the monitor diode (MD) will be constant.
MN2DS0016AAUB includes 2 types of APC circuit, one for DVD and the other for CD.
The LD current can be obtained by dividing the measured voltage between DVDLD1 (CDLD1) and 5 V by 6 Ω (1.5 Ω x 4=6 Ω), in the case of DVD (CD). It will be approximately 50 mA (45 mA) in the case of DVD (CD).
The potential difference between DVDLD1(CDLD1) and 5 V is set to approx. 300 mV(270 mV).

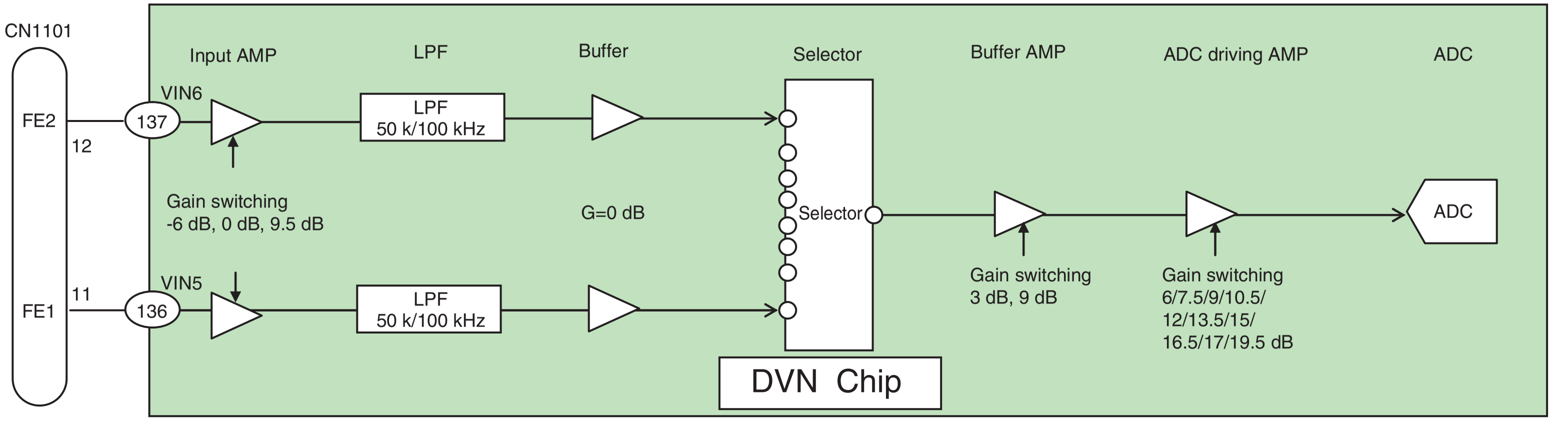


1.1.2 FE forming circuit

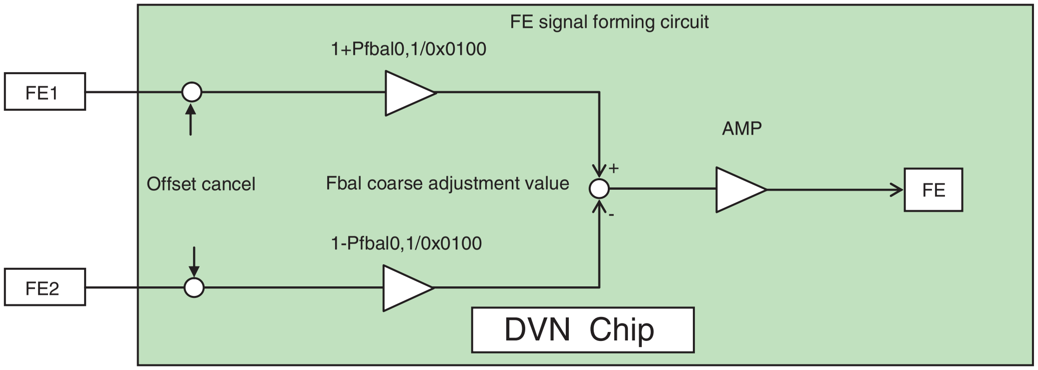
Focus error (FE) forming circuit

The signal from PU, FE1 and FE2, are AD converted inside IC1501 and captured. After that, a differential is obtained by taking the offset cancellation into consideration, and FE is obtained.

FE = (FE1) - (FE2)


CN1101
FE2
FE1
12
11
137
136
VIN6
VIN5
Input AMP
LPF
Buffer
Selector
Buffer AMP
ADC driving AMP
ADC
LPF 50 k/100 kHz
LPF 50 k/100 kHz
Gain switching -6 dB, 0 dB, 9.5 dB
G=0 dB
Selector
Gain switching 3 dB, 9 dB
Gain switching 6/7.5/9/10.5/ 12/13.5/15/ 16.5/17/19.5 dB
ADC
DVN Chip

After 10 bit ADC


FE signal forming circuit
FE1
FE2
1+Pfbal0,1/0x0100
1-Pfbal0,1/0x0100
Offset cancel
Fbal coarse adjustment value
AMP
+
-
FE
DVN Chip

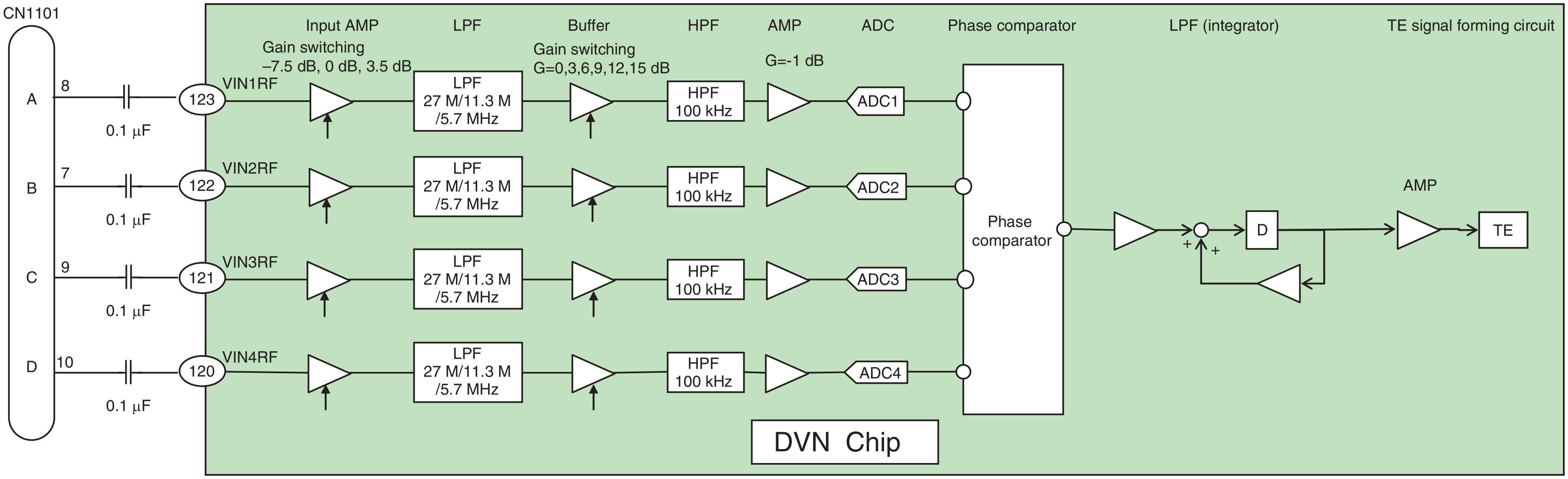
1.1.3 TE forming circuit

Tracking error (TE) forming circuit

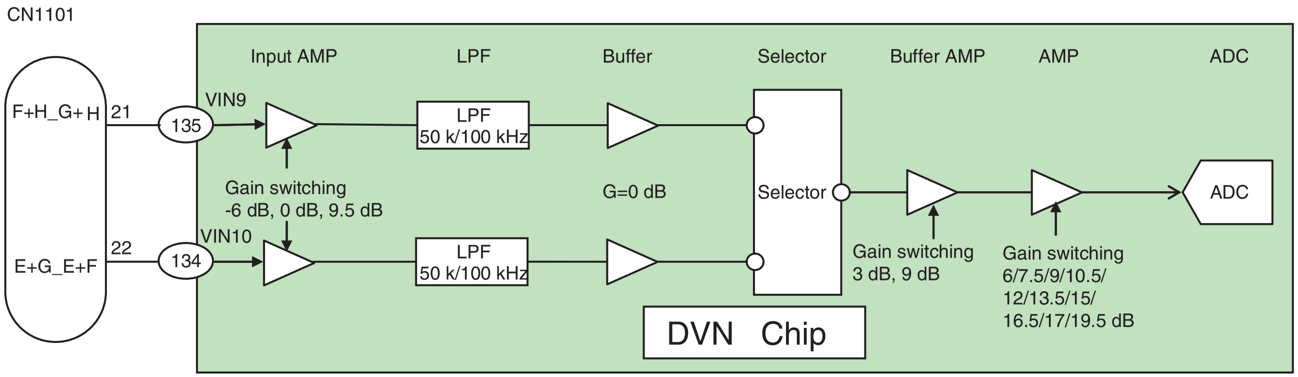
In the case of a DVD, the phase difference method is used for TE forming, and the TE is formed from the phase difference among (A+C) and (B+D).

In the case of a CD, 3 beam method is used, and after entering the signal into a variable amplifier for tracking offset adjustment via an external resistor, it is AD converted, and a TE is formed by the equation of TE=(E+G_E+F)-(F+H_G+H).

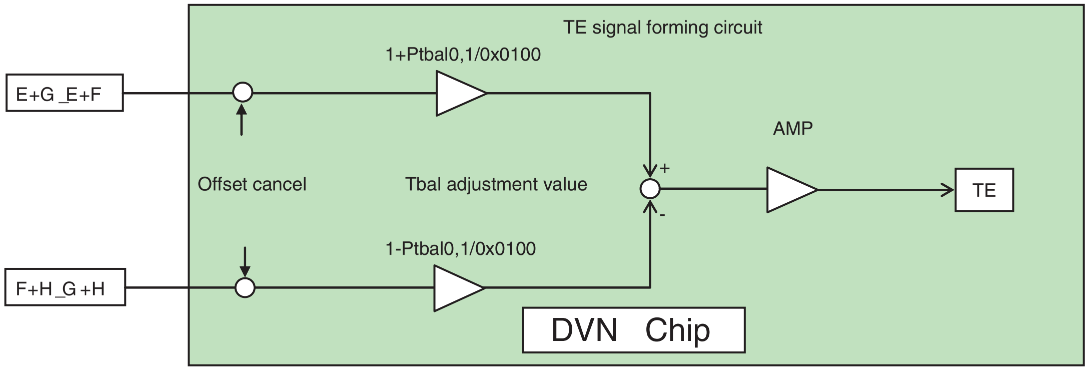
- DVD (phase difference TE)


CN1101
A
B
C
D
8
7
9
10
0.1 µF
0.1 µF
0.1 µF
0.1 µF
123
122
121
120
VIN1RF
VIN2RF
VIN3RF
VIN4RF
Input AMP
Gain switching
–7.5 dB, 0 dB, 3.5 dB
LPF
LPF 27 M/11.3 M /5.7 MHz
Buffer
Gain switching
G=0,3,6,9,12,15 dB
HPF
HPF 100 kHz
AMP
G=-1 dB
ADC
ADC1
ADC2
ADC3
ADC4
Phase comparator
Phase comparator
LPF (integrator)
+
+
D
TE signal forming circuit
AMP
TE
DVN Chip

• CD (3 beam TE)


CN1101
Input AMP
LPF
Buffer
Selector
Buffer AMP
AMP
ADC
F+H_G+H
21
135
VIN9
LPF
50 k/100 kHz
Gain switching
-6 dB, 0 dB, 9.5 dB
G=0 dB
Selector
ADC
E+G_E+F
22
134
VIN10
LPF
50 k/100 kHz
Gain switching
3 dB, 9 dB
Gain switching
6/7.5/9/10.5/
12/13.5/15/
16.5/17/19.5 dB
DVN Chip

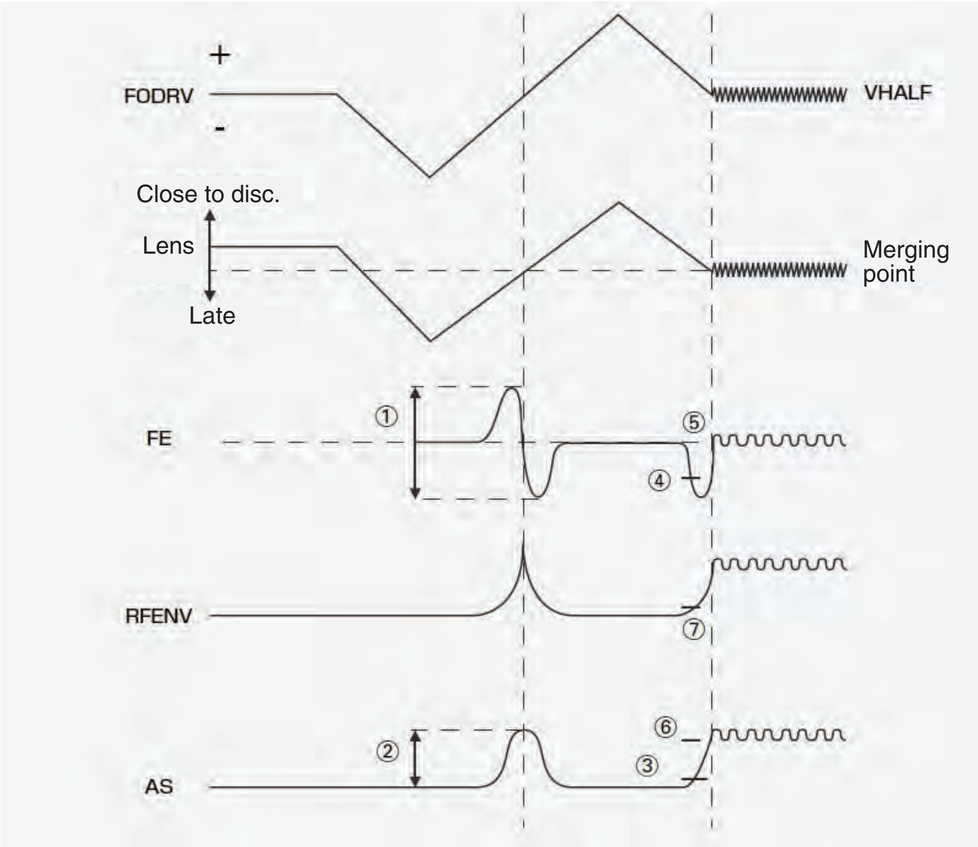
After 10 bit ADC


TE signal forming circuit
1+Ptbal0,1/0x0100
E+G_E+F
AMP
+
Offset cancel
Tbal adjustment value
-
TE
1-Ptbal0,1/0x0100
F+H_G+H
DVN Chip

1.2 Servo block (MN2DS0016AAUB : IC1501)

At the servo block, focusing, tracking, servo control of traverse, spindle motor control and seek control are performed.

1.2.1 Focus close



After issuing the focus close command, both the DVD and the CD will perform the following processing.

1. Measurement and optimization of the signal level.
   First the PU lens is driven in the direction getting away from the disc, then it is driven in the direction getting close to the disc. At this time, each signal level of FE, AS and RFENV are measured at the focused focal point that the lens passes, and the levels of FE and AS are optimized. (1 and 2 in the figure)
2. Focus adjustment
   Next, after detecting the drawing level of FE and AS by driving the lens away from the disc, the focus loop filter is activated and the focus is drawn. (3~6)
3. Confirmation of adjustment
   Confirm the drawing at the signal level of AS and RFENV. (6, 7)
   The signal levels of FE, AS and RFENV and the focus drive voltage can be checked by the focus search in the test mode.

1.2.2 Tracking close

After issuing the tracking close command, both the DVD and the CD will perform the following processing.

1. Tracking brake
   1/2 cycle of the track cross is measured and if the cycle is within the specified range, the brake pulse is output.
   The output direction of the brake pulse is determined by the phase relationship of the OFTR and the TKC (binary signal of TE) signals. When it is confirmed that the swinging of the lens against the disc has been controlled, braking will be stopped and enters into drawing. If the drawing conditions are not met within 10 msec, after the brake output, the brake will be ended and entered into drawing.
2. Tracking adjustment
   Tracking drive hold processing by the OFTR signal will be performed.
3. Confirmation of adjustment
   Checking is made that the number of track jumps within the specified period of time are at the designated numbers or less. The time out for confirmation of adjustment is 8.4 msec. and retry is performed by the command from the microcomputer.

1.2.3 Track jump

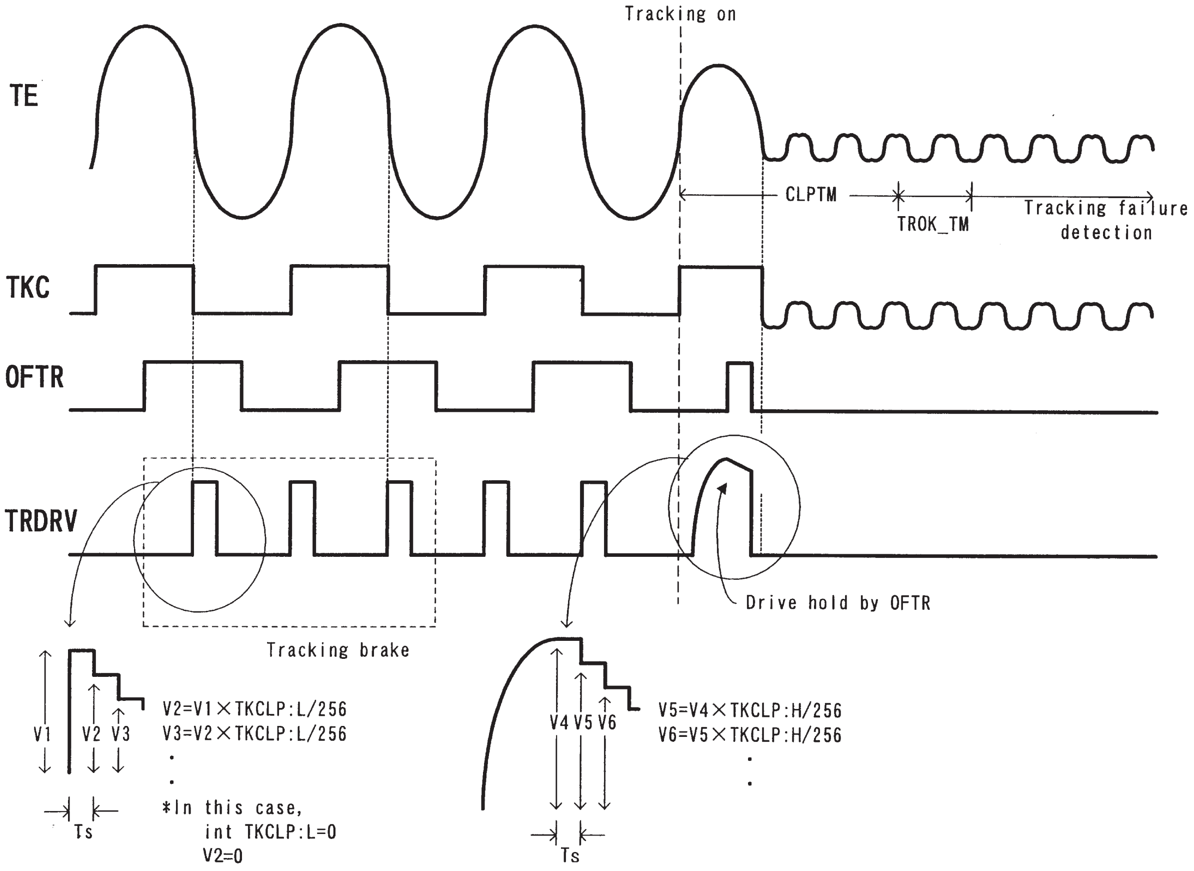
In this system, one of the three methods, interval jump, multi jump or traverse seek, is selected depending on the number of target moving tracks.

1. Interval jump
   Detailed seek can be performed to execute repeated track jump of 1 track, and it is used when the target track gets close or at the time of seek operation to the adjacent track.
2. Multi jump
   Both edges of the track cross signal TKC are counted, and track count move of the designated number is executed. Furthermore, the stepping motor is driven according to the number of jumps.
3. Traverse seek
   The stepping motor is controlled by F/W. Track count by TKC is not performed, and the stepping motor is moved according to the number of jumps. In the case of a DVD, seek is performed by maintaining the pick up at the mid point using the mid point servo by the microcomputer.
   It indicates the setting for jump switching common to DVD and CD.
   Types of target move number of jumps.

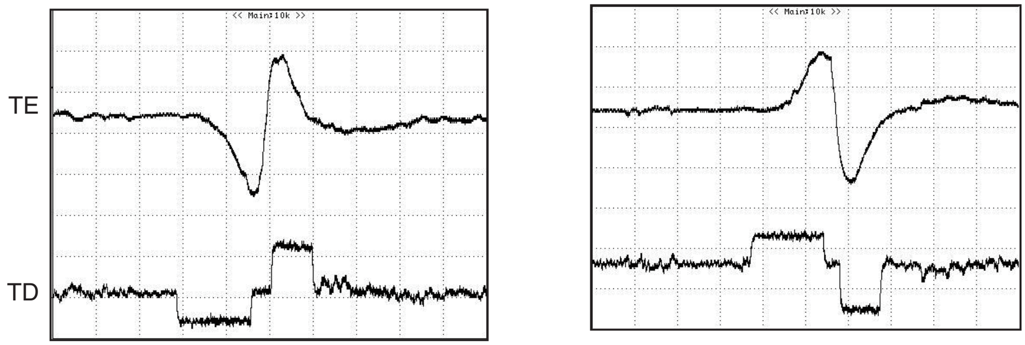
DVD	CD
1~10 Interval jump	1~10 Interval jump
11~500 Multi jump	11~400 Multi jump
501~878 Combination of multi jump and interval jump	401~780 Combination of multi jump and interval jump
879~1756 Traverse seek (short)	781~928 Traverse seek (short)
1757~ Traverse seek (long)	929~ Traverse seek (long)

The waveform of track jump is shown on the next page.

Tracking-on process


Tracking on
TE
CLPTM
TROK_TM
Tracking failure detection
TKC
OFTR
TRDRV
Drive hold by OFTR
Tracking brake
V1
V2
V3
V2=V1×TKCLP:L/256
V3=V2×TKCLP:L/256
*In this case,
int TKCLP:L=0
V2=0
Ts
V4
V5
V6
V5=V4×TKCLP:H/256
V6=V5×TKCLP:H/256
Ts

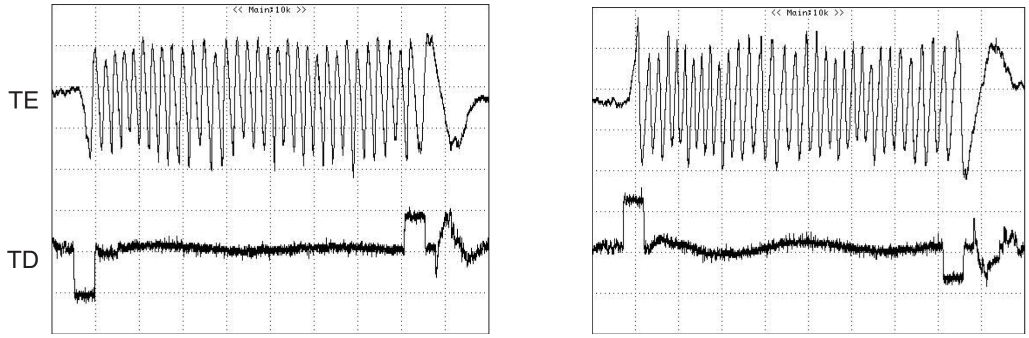
Interval jump (1 track) DVD



Outer peripheral jump

Inner peripheral jump

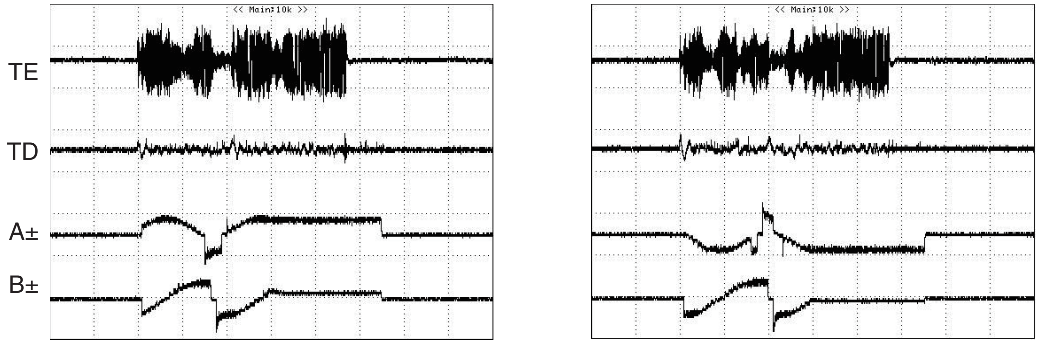
Multi jump (32 track) DVD



Outer peripheral jump

Inner peripheral jump

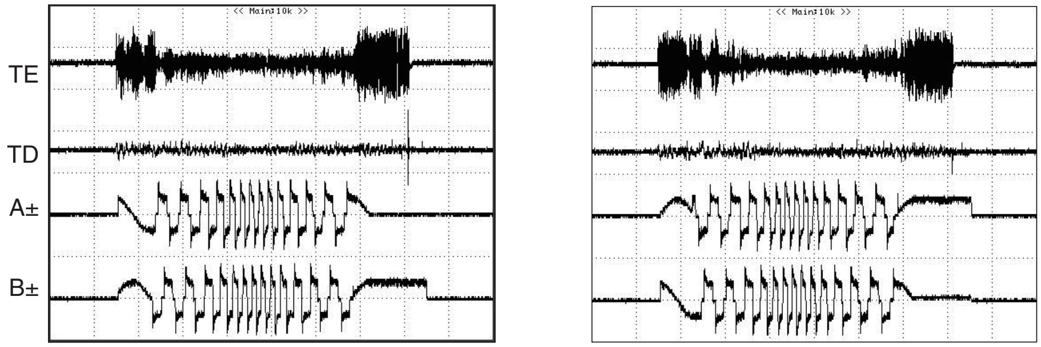
Traverse seek (900 tracks) A ± and B ± are measured by setting the LPF of the oscilloscope to 10 kHz.



Outer peripheral jump

Inner peripheral jump

Traverse seek (10 000 tracks)

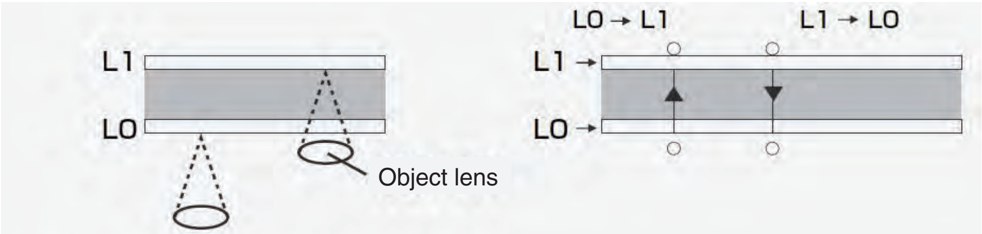


Outer peripheral jump

Inner peripheral jump

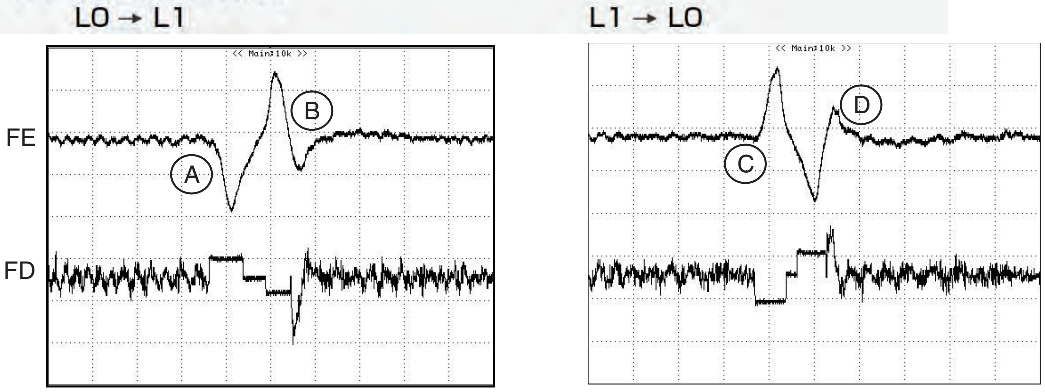
1.2.4 Focus jump

Focus jump is a function compatible to 2 layers on one side or 2 layers on both sides. Looking from the object lens, the layer close to the lens is called “layer 0” (L0) and the layer away from the lens is called “layer 1” (L1).



The waveform of the focus jump is shown below.

Focus jump waveform



The flow of the focus jump is shown below.

1. The tracking is opened by the layer being played back.
2. A command is issued to execute jump to the target layer.
3. The tracking is closed at the layer after the jump and the playback is resumed.

Incidentally, the process when the jump command is issued is as described below.

1. The lens is accelerated to the target layer until the FE signal detects the focus jump acceleration end level. Acceleration will be ended by force, however, if the time for acceleration timeout has elapsed before detecting the acceleration end level.
2. The drive voltage is not output until the FE signal detects the speed reduction start level, and the lens is moved by inertia.
3. The lens speed is reduced from detection of the speed reduction start level until detection of the speed reduction end level. Speed reduction will be ended by force, however, if the time for speed reduction timeout has elapsed before detecting the speed reduction end level.

1.3 Auto adjustment function

All circuit adjustments are automated in this system.
Details of each auto adjustment are explained below.

1.3.1 VIN1, VIN2, VIN3, VIN4, VIN5, VIN6, VIN9, VIN10 offset cancel

Each signal from VIN1~6, 9 and 10 output by PU is converted to a digital signal by the AD converter in the servo block.
Offset cancel is a function to cancel input offset of the AD converter at the time of power ON.

1.3.2 VCO gain adjustment (VARI adjustment)

It has a function to absorb variation of VCO gain among individual LSI by learning so that auto adjustment is made to maintain the VCO gain at a certain level. VCO is locked against the reference frequency for learning.
And, a frequency control value (FCNT) is read, and VARI register is adjusted so that the read value becomes the same as the target FCNT value.

1.3.3 FE normalization adjustment

FE signal level measured at the time of focus close is adjusted so that it will become 190LSB at the digital equalizer input stage.

1.3.4 Tracking balance (TBAL) adjustment

At the time of focus close and tracking open, the lens is oscillated in the track direction and the balanced point where the DC offset becomes zero is searched and adjusted by using the Newton-Raphson method.

1.3.5 Learning of tracking error amplitude

At the time of focus close and tracking open, the lens is oscillated in the track direction and adjusted so that the TE amplitude level becomes 190 LSB at the digital equalizer input stage.

1.3.6 OFTR adjustment

The binary threshold level is adjusted to make the OFTR signal into a binary digit.

1.3.7 RF gain adjustment

The gain setting is adjusted by the VGA value in order to set the gain setting of the RF forming circuit to an optimum one according to the PU output.

1.3.8 Focus balance (FBAL) adjustment

The focus position is adjusted so that the RFENV will be the maximum at the time of focus close · tracking open and tracking close.

1.3.9 Focus gain adjustment, tracking gain adjustment

At the time of tracking close, a disturbance is entered into the servo loop to adjust to the target gain intersection.

1.3.10 AS normalization adjustment

The AS signal level is measured for the designated number of samples at the time of track closing, and after A/D conversion at the ADSC, it is fine adjusted to become 64 LSB at the digital equalizer input stage.

All auto adjustments can be confirmed by displaying the adjustment result in the test mode.

The list of auto adjustment coefficient

State	Coefficient	DVD	CD
Power ON	VIN1 offset	06B7~08CD	-
	VIN2 offset	06B7~08CD	-
	VIN3 offset	06B7~08CD	-
	VIN4 offset	06B7~08CD	-
	VIN5 offset	06B7~08CD	06E1~08A3
	VIN6 offset	06B7~08CD	06E1~08A3
	VIN9 offset	-	06B7~08CD
	VIN10 offset	-	06B7~08CD
F close	FE MAX	0E48~36CD	13A5~469A
	FE MIN	C933~F1B8	B966~EC5B
	AS MAX	037B~1BD9	0978~3DDC
	FE normalization	01DD~05B4	016A~045B
F close (after TBAL)	TE MAX	1518~47E0	0337~381A
	TE MIN	B820~EAE8	C7E6~FCC9
	TE normalization	017C~0320	0230~08AF
T close	F gain	0100~0400	←
	T gain	0100~0400	←
	AS normalization	024C~125F	0168~0399

Note) Coefficient values are indicated in hexadecimals. In all cases, specifications at the production line are described. For discs, TDV-582 is used for DVD and TCD-792 is used for CD.

1.4 CIRC block (MN2DS0016AAUB : IC1501)

The CIRC block includes the digital signal processing function (EFM modulation and error correction) of CD-DA and CD-ROM and the digital servo processing function of the spindle motor.

1.5 DRC block (MN2DS0016AAUB : IC1501)

The digital read channel (DRC) is equipped with A/D converter, digital equalizer (DEQ), Adaptive filter, Viterbi detector, digital PLL circuit, RISC interface and periphery circuits for reading of signal on optical disc.

1.6 ATAPI I/F(MS5 base model)

[Outline]
The ATAPI interface is a ATAPI protocol control circuit compatible to ATA/ATAPI-5.
The register of the control section can be directly accessed from the system controller, and the data transfer is made via the SODC internal bus.

◉ ATAPI interface

* When viewed from ↓ DVD-LSI.

Signal Name	Bits	I/O	Description
HDD[15:0]	16	I/O	ATAPI data input/output
NCS[1:0]	2	I	ATAPI host chip select
DA[2:0]	3	I	ATAPI host address
NIORD	1	I	ATAPI host data read out
NIOWR	1	I	ATAPI host data write
IORDY	1	O	ATAPI host ready output
DMARQ	1	O	DMA request to ATAPI host
NDMACK	1	I	DMA response from ATAPI host
INTRQ	1	O	Interrupt request to ATAPI host
NDASP]	1	O	ATAPI drive information
NPDIAG	1	O	ATAPI slave・master diagnosis
NRESET	1	I	ATAPI host hard reset
MASTER	1	I	ATAPI slave・master selection

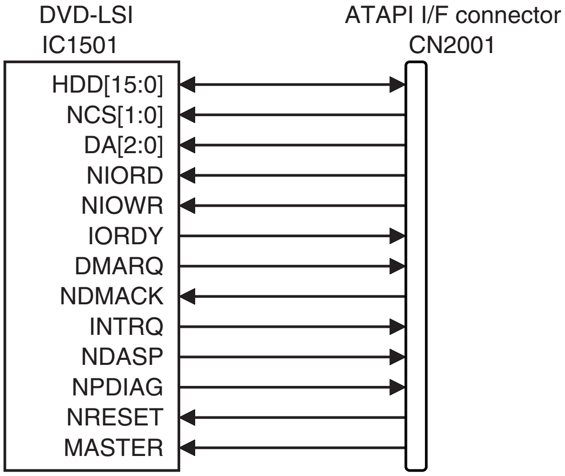
◉ ATAPI specifications

- Compatible transfer mode

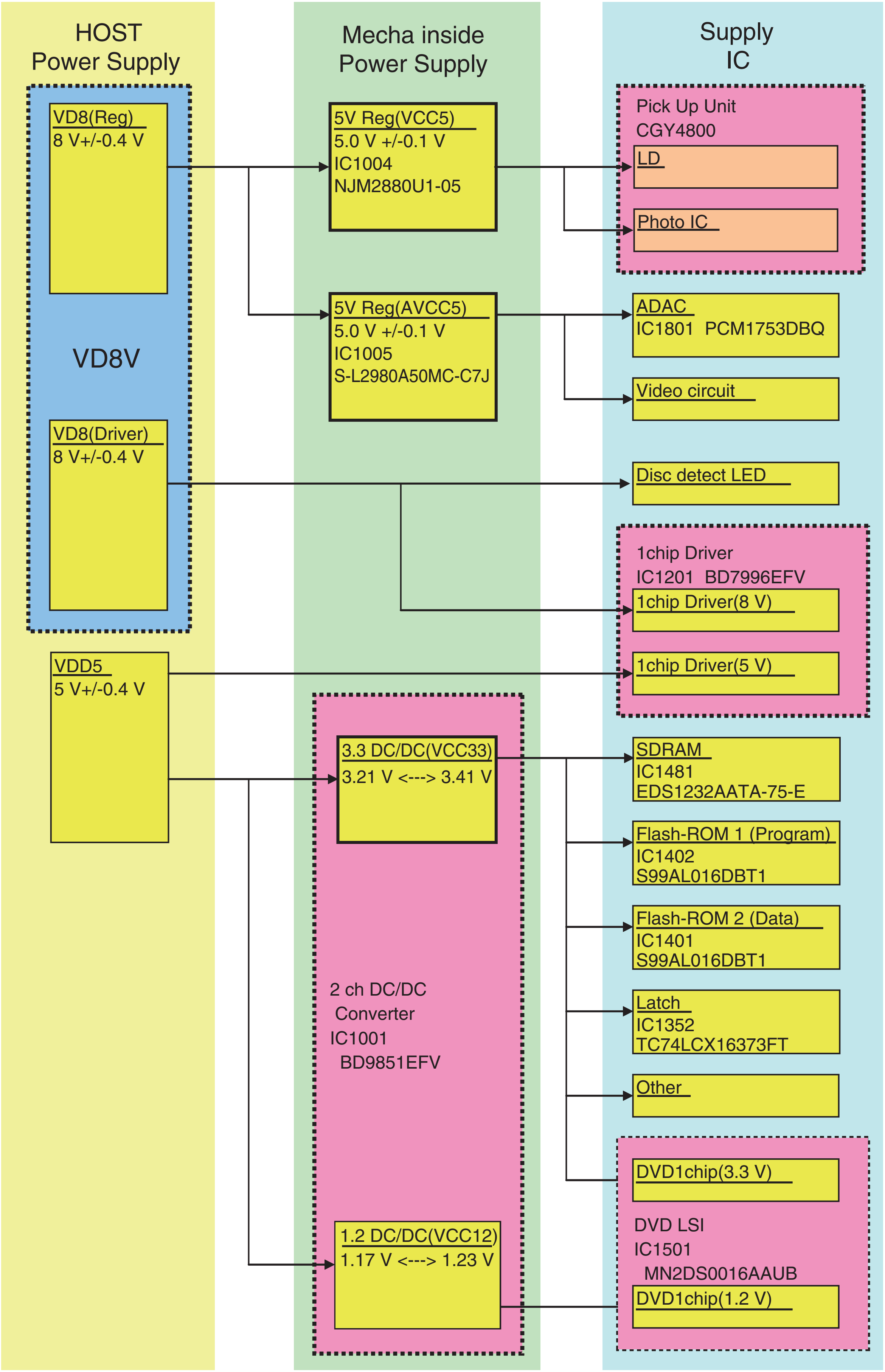
PIO	mode 0 to 4
Single word DMA	mode 0 to 2
Multi word DMA	mode 0 to 2
Ultra DMA	mode 0 to 4

- 64 Byte data FIFO for host I/F is built-in.
- Auto capturing function of ATAPI command packet is built-in.
- Master ・slave compatible

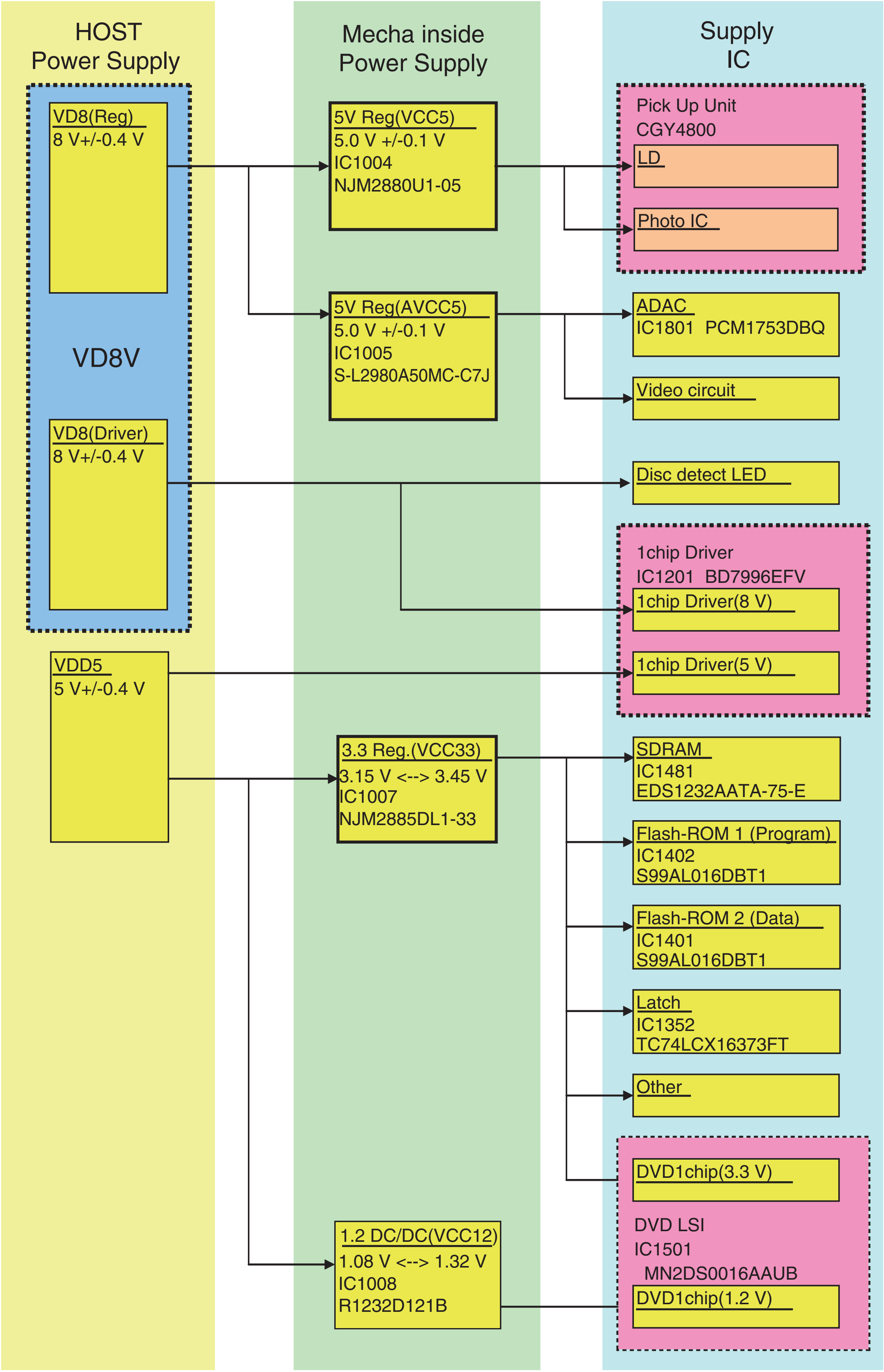
◉ ATAPI connection configuration


DVD-LSI
IC1501
ATAPI I/F connector
CN2001
HDD[15:0]
NCS[1:0]
DA[2:0]
NIORD
NIOWR
IORDY
DMARQ
NDMACK
INTRQ
NDASP
NPDIAG
NRESET
MASTER

1.7 Power Supply Map(MS5 base model)

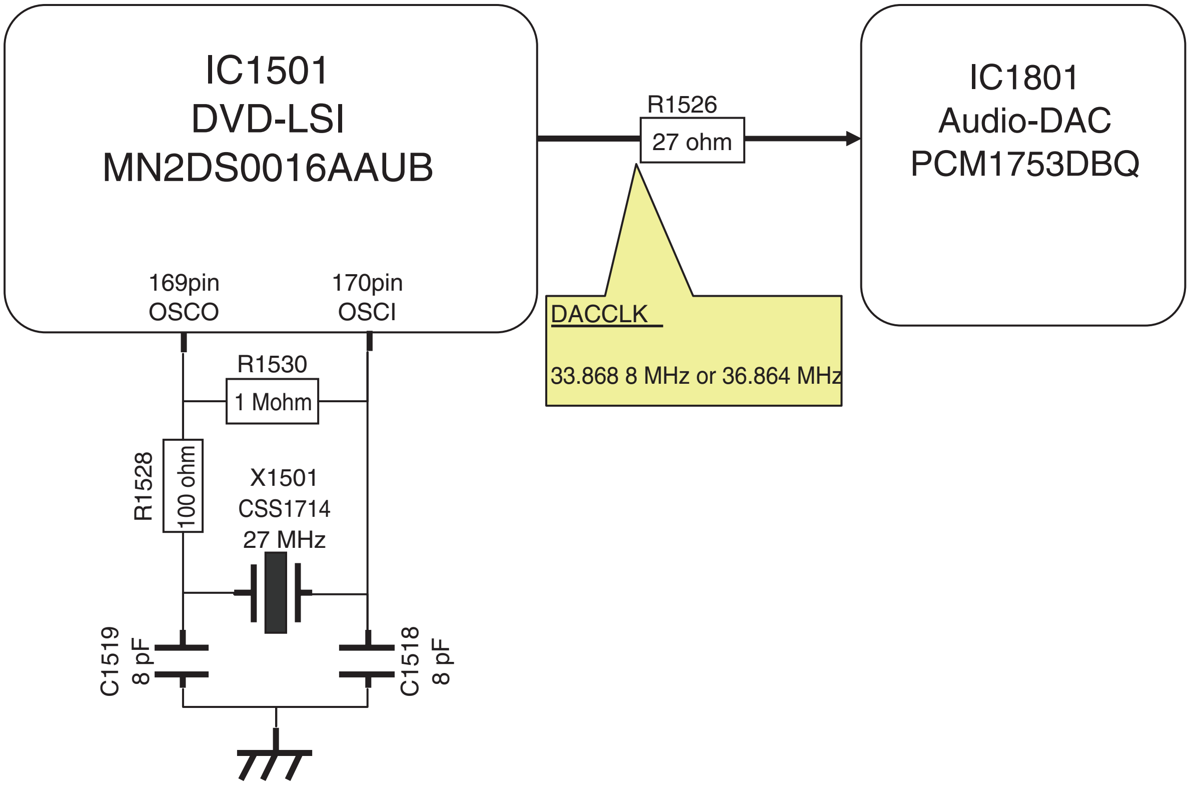

HOST
Power Supply
VD8(Reg)
8 V+/-0.4 V
VD8V
VD8(Driver)
8 V+/-0.4 V
VDD5
5 V+/-0.4 V
Mecha inside
Power Supply
5V Reg(VCC5)
5.0 V +/-0.1 V
IC1004
NJM2880U1-05
5V Reg(AVCC5)
5.0 V +/-0.1 V
IC1005
S-L2980A50MC-C7J
3.3 DC/DC(VCC33)
3.21 V <---> 3.41 V
2 ch DC/DC
Converter
IC1001
BD9851EFV
1.2 DC/DC(VCC12)
1.17 V <---> 1.23 V
Supply
IC
Pick Up Unit
CGY4800
LD
Photo IC
ADAC
IC1801 PCM1753DBQ
Video circuit
Disc detect LED
1chip Driver
IC1201 BD7996EFV
1chip Driver(8 V)
1chip Driver(5 V)
SDRAM
IC1481
EDS1232AATA-75-E
Flash-ROM 1 (Program)
IC1402
S99AL016DBT1
Flash-ROM 2 (Data)
IC1401
S99AL016DBT1
Latch
IC1352
TC74LCX16373FT
Other
DVD1chip(3.3 V)
DVD LSI
IC1501
MN2DS0016AAUB
DVD1chip(1.2 V)

Power Supply Map(MS5AV code2 model)


HOST
Power Supply
Mecha inside
Power Supply
Supply
IC
VD8(Reg)
8 V+/-0.4 V
VD8V
VD8(Driver)
8 V+/-0.4 V
VDD5
5 V+/-0.4 V
5V Reg(VCC5)
5.0 V +/-0.1 V
IC1004
NJM2880U1-05
5V Reg(AVCC5)
5.0 V +/-0.1 V
IC1005
S-L2980A50MC-C7J
3.3 Reg.(VCC33)
3.15 V <--> 3.45 V
IC1007
NJM2885DL1-33
1.2 DC/DC(VCC12)
1.08 V <--> 1.32 V
IC1008
R1232D121B
Pick Up Unit
CGY4800
LD
Photo IC
ADAC
IC1801 PCM1753DBQ
Video circuit
Disc detect LED
1chip Driver
IC1201 BD7996EFV
1chip Driver(8 V)
1chip Driver(5 V)
SDRAM
IC1481
EDS1232AATA-75-E
Flash-ROM 1 (Program)
IC1402
S99AL016DBT1
Flash-ROM 2 (Data)
IC1401
S99AL016DBT1
Latch
IC1352
TC74LCX16373FT
Other
DVD1chip(3.3 V)
DVD LSI
IC1501
MN2DS0016AAUB
DVD1chip(1.2 V)

1.8 Clock circuit

[Outline]
By connecting a 27 MHz crystal oscillator to DVD-LSI (IC1501), DACCLK for externally connected Audio-DAC is formed and supplied by the clock generator inside the DVD-LSI in addition to the clock used inside the LSI.


IC1501
DVD-LSI
MN2DS0016AAUB
169pin
OSCO
170pin
OSCI
R1526
27 ohm
IC1801
Audio-DAC
PCM1753DBQ
DACCLK
33.868 8 MHz or 36.864 MHz
R1530
1 Mohm
R1528
100 ohm
X1501
CSS1714
27 MHz
C1519
8 pF
C1518
8 pF

1.9 Audio circuit

[Outline]

① Analog audio signal

Serial 3 line digital output + DACCLK (audio clock) output from DVD-LSI (IC1501) are converted to analog audio signal by Audio-DAC (IC1801), and are output from HOST IF connector (CN1901). Furthermore, analog MUTE signal is also output from DVD-LSI (IC1501) via HOST IF connector (CN1901) simultaneously.

② Digital audio signal (IEC60958/IEC61937)

Digital audio signal (IEC60958/IEC61937), output from DVD-LSI (IC1501), is output via Multi-ch/Ripping IF connector (CN1851).

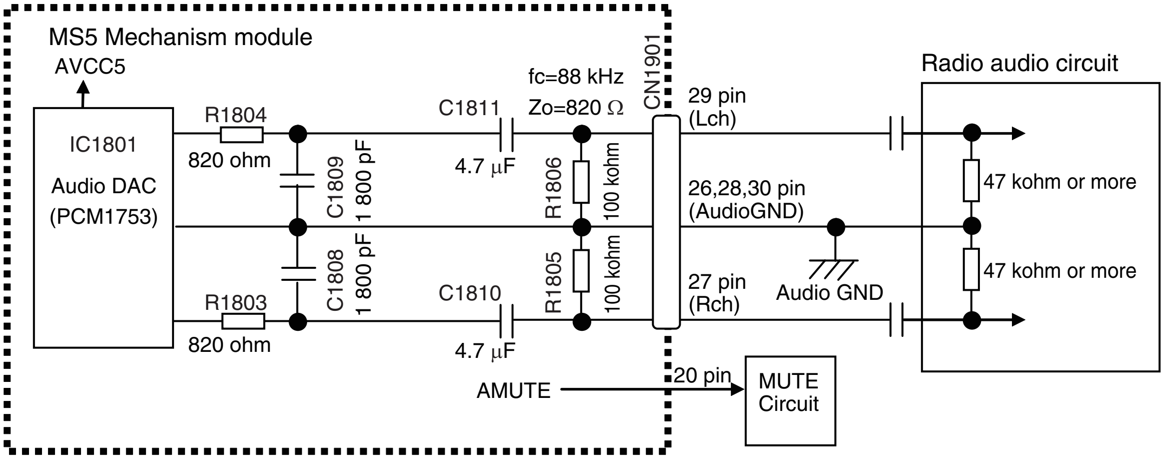
③ Digital multi-channel audio serial signal

Serial 6 line output from DVD-LSI (IC1501) is output via Multi-ch/Ripping IF connector (CN1851).

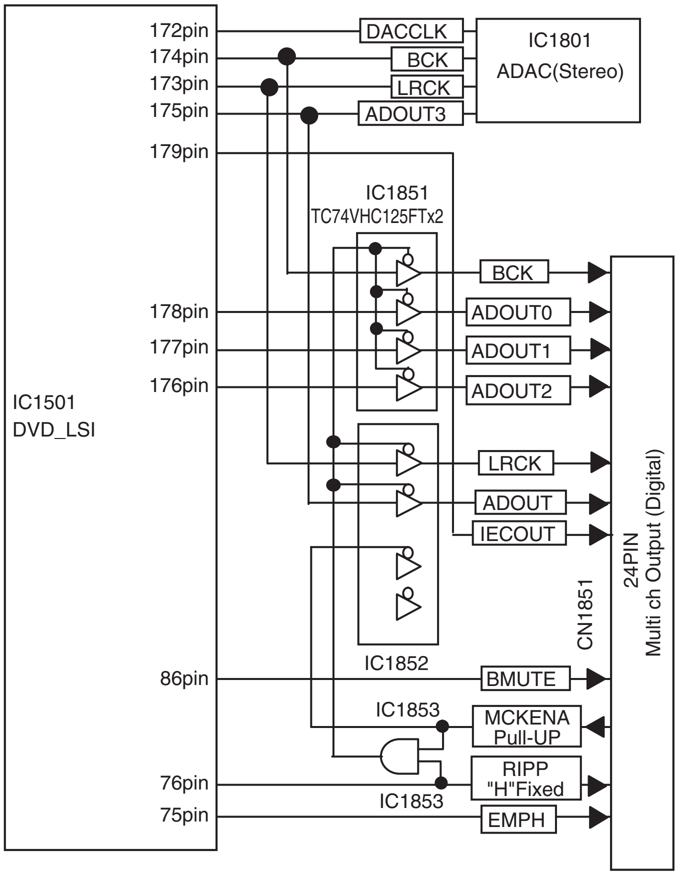
④ CD-DA ripping signal

Serial 3 line signal output + SUB-CODE signal, output from DVD-LSI (IC1501), are output in 4 times speed via Multi-ch/Ripping IF connector (CN1851).

[Analog audio signal]

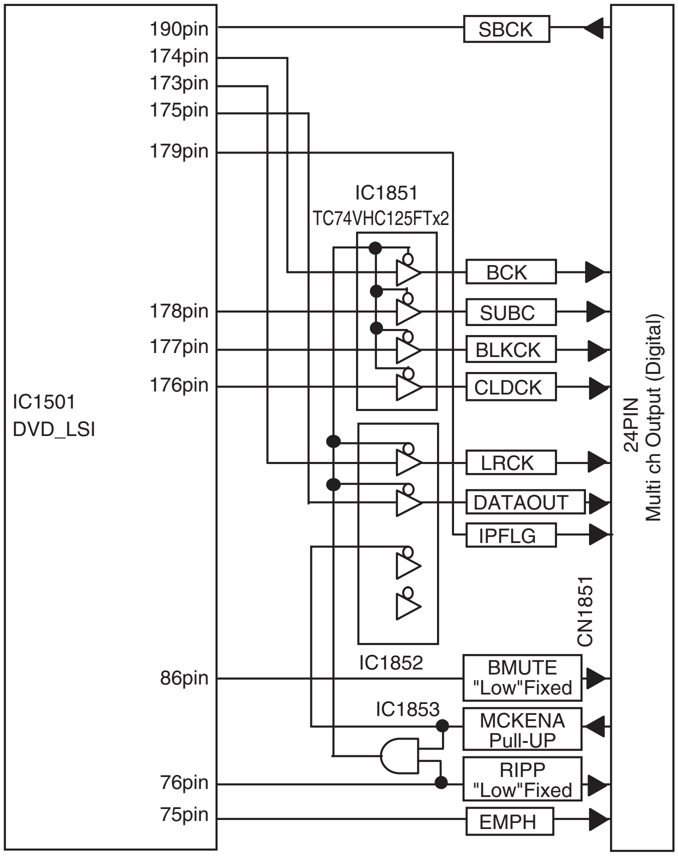

MS5 Mechanism module
AVCC5
IC1801
Audio DAC
(PCM1753)
R1804
820 ohm
R1803
820 ohm
C1809
1 800 pF
C1808
1 800 pF
C1811
4.7 µF
C1810
4.7 µF
fc=88 kHz
Zo=820 Ω
R1806
100 kohm
R1805
100 kohm
CN1901
29 pin
(Lch)
26,28,30 pin
(AudioGND)
27 pin
(Rch)
Audio GND
AMUTE
20 pin
MUTE
Circuit
Radio audio circuit
47 kohm or more
47 kohm or more

[Digital audio signal]



IC1501
DVD_LSI
172pin
174pin
173pin
175pin
179pin
178pin
177pin
176pin
86pin
76pin
75pin
DACCLK
BCK
LRCK
ADOUT3
IC1801
ADAC(Stereo)
IC1851
TC74VHC125FTx2
BCK
ADOUT0
ADOUT1
ADOUT2
LRCK
ADOUT
IECOUT
IC1852
BMUTE
IC1853
MCKENA
Pull-UP
RIPP
"H"Fixed
IC1853
EMPH
CN1851
24PIN
Multi ch Output (Digital)

[CD-DA 4 times speed ripping signal]

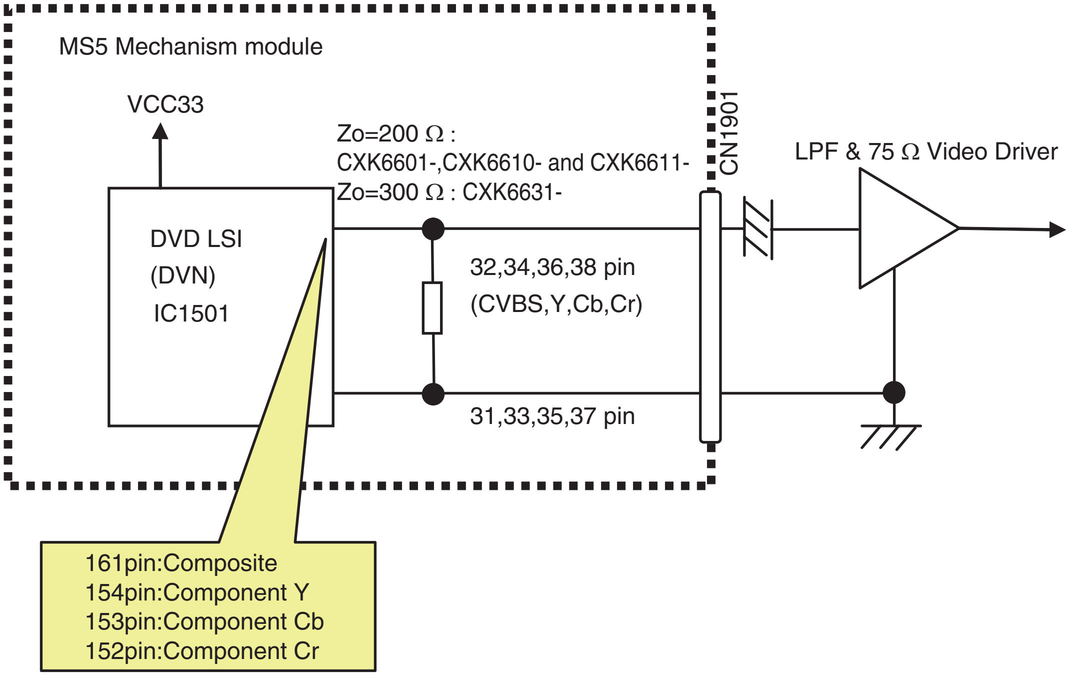


IC1501
DVD_LSI
190pin
174pin
173pin
175pin
179pin
178pin
177pin
176pin
86pin
76pin
75pin
SBCK
IC1851
TC74VHC125FTx2
BCK
SUBC
BLKCK
CLDCK
LRCK
DATAOUT
IPFLG
IC1852
BMUTE
"Low"Fixed
IC1853
MCKENA
Pull-UP
RIPP
"Low"Fixed
EMPH
CN1851
24PIN
Multi ch Output (Digital)

1.10 Video circuit

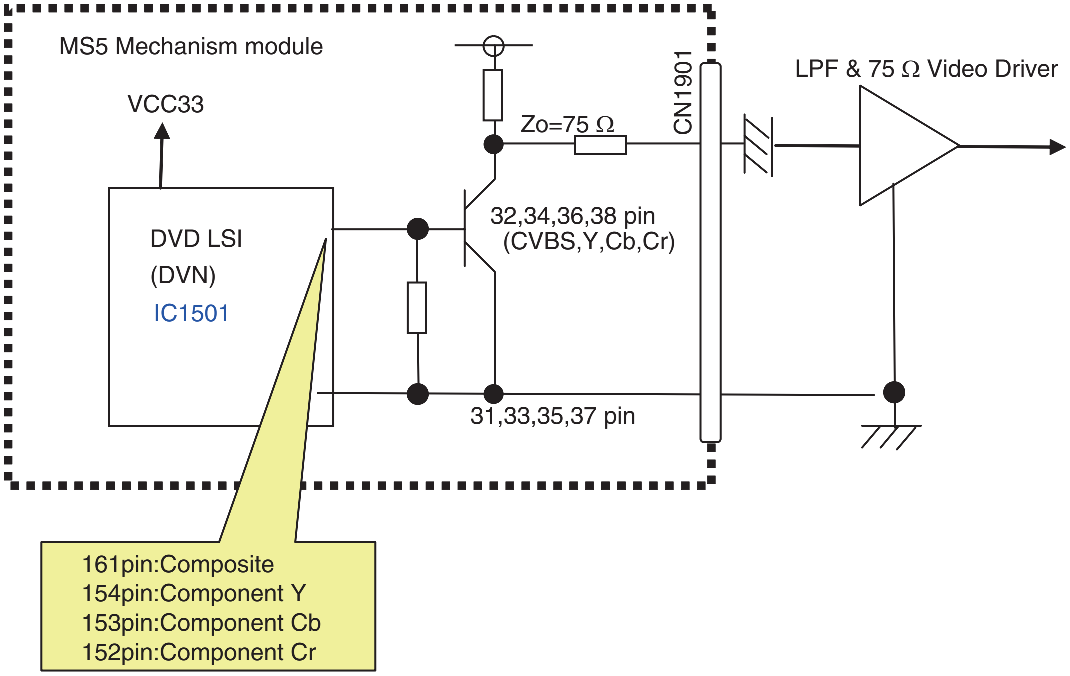
[Outline]
Composite signal and component signal are output from DVD-LSI (IC1501), and output from HOST IF (CN1901).
Incidentally, the buffer circuit of MS5AVcode2 model ->
CXK6631-,CXK6601-,CXK6610- and CXK6611- : No Mount, and the output signal from DVD-LSI is output as is.
CXK6630- : The buffer circuit is installed.

CXK6631-,CXK6601-,CXK6610- and CXK6611-


MS5 Mechanism module
VCC33
Zo=200 Ω :
CXK6601-,CXK6610- and CXK6611-
Zo=300 Ω : CXK6631-
CN1901
LPF & 75 Ω Video Driver
DVD LSI
(DVN)
IC1501
32,34,36,38 pin
(CVBS,Y,Cb,Cr)
31,33,35,37 pin

161pin:Composite
154pin:Component Y
153pin:Component Cb
152pin:Component Cr

CXK6630-


MS5 Mechanism module
VCC33
Zo=75 Ω
CN1901
LPF & 75 Ω Video Driver
DVD LSI
(DVN)
IC1501
32,34,36,38 pin
(CVBS,Y,Cb,Cr)
31,33,35,37 pin

161pin:Composite
154pin:Component Y
153pin:Component Cb
152pin:Component Cr

1.11 SDRAM I/F

[Outline]
It is a memory for realizing the AV decoding function of DVD-LSI (IC1501). It is used for various purposes such as buffering of stream data before decoding, working area for decoding, and storing of AV data or output data after decoding.

◉ SDRAM interface

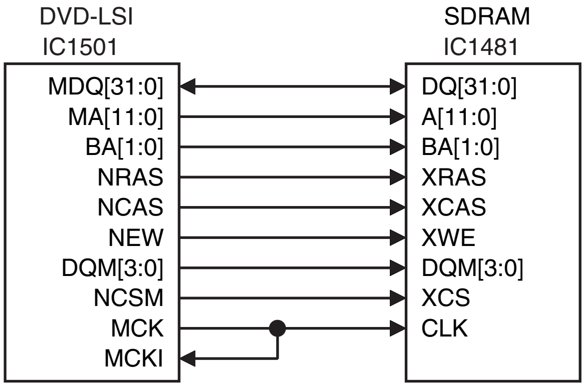
* When viewed from ↓ DVD-LSI

Signal Name	Bits	I/O	Description
MDQ[31:0]	32	I/O	Data bus of external SDRAM
MA[11:0]	12	O	SDRAM address
BA[1:0]	2	O	SDRAM bank address
NRAS	1	O	RAS signal of SDRAM
NCAS	1	O	CAS signal of SDRAM
NEW	1	O	Write enable signal of SDRAM
NCS	1	O	Chip select signal of SDRAM
DQM[0]	1	O	Mask signal for writing lower level byte of the lower 2 bytes in SDRAM
DQM[1]	1	O	Mask signal for writing higher level byte of the lower 2 bytes in SDRAM
DQM[2]	1	O	Mask signal for writing lower level byte of the higher level 2 bytes in SDRAM
DQM[3]	1	O	Mask signal for writing higher level byte of the higher 2 bytes in SDRAM
MCK	1	O	Clock input to SDRAM
MCKI	1	I	Clock input for data input from SDRAM

◉ SDRAM specifications

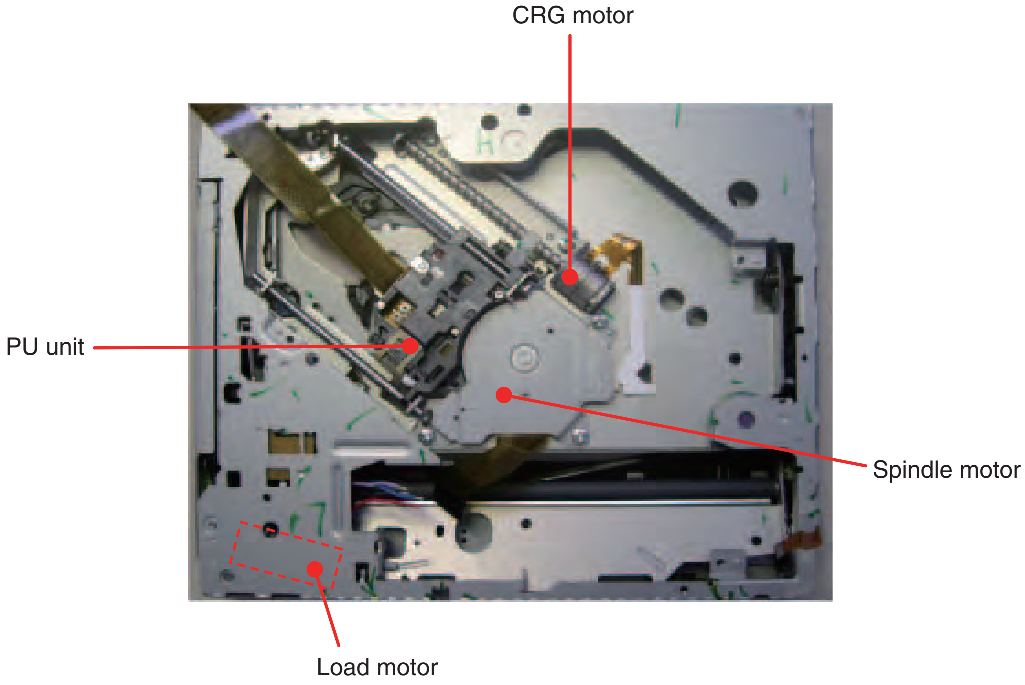
- Data bus width: 32 bit
- Operating frequency: 121.5 MHz
- CAS latency=3
- 8 word burst transfer
- Manual precharge
- CAS before RAS refresh (Auto refresh)

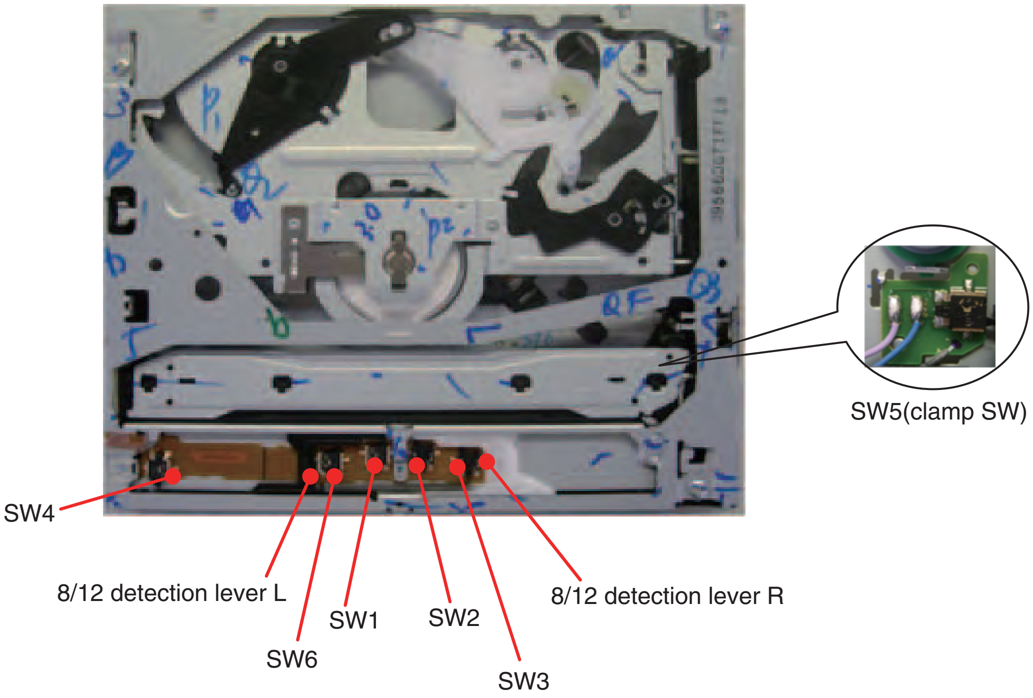
◉ SDRAM connection configuration



2. MECHANISM DESCRIPTIONS

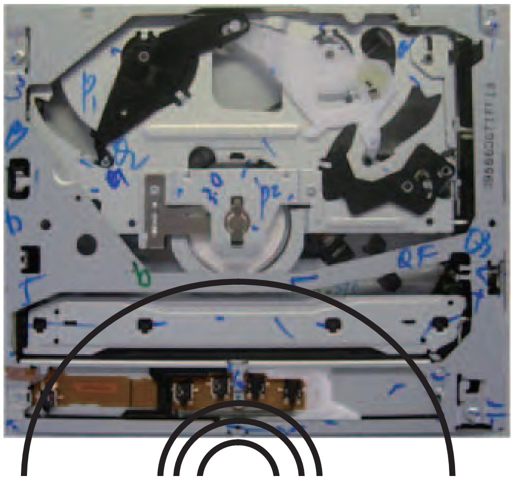
Construction


CRG motor
PU unit
Spindle motor
Load motor

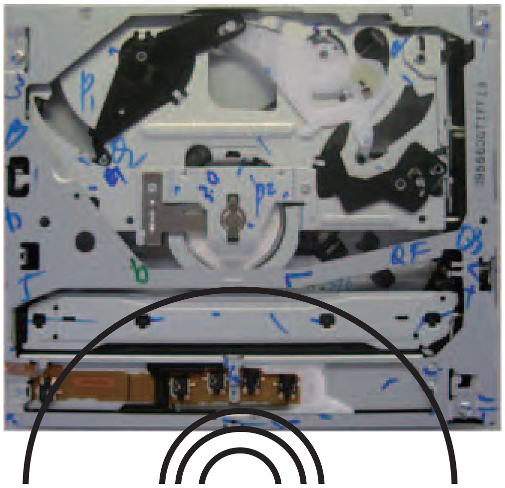

SW5(clamp SW)
SW4
8/12 detection lever L
SW1
SW2
8/12 detection lever R
SW6
SW3

2.1 Disc loading operation

1. When the disc is loaded, 8/12 detection lever R · L will slide, either SW1 or SW2 will be ON→OFF, and the loading motor will start.
2. In the case of a 12 cm disc, the disc is transported and SW3 becomes OFF and SW4 becomes ON, and the microcomputer judges as a 12 cm disc.

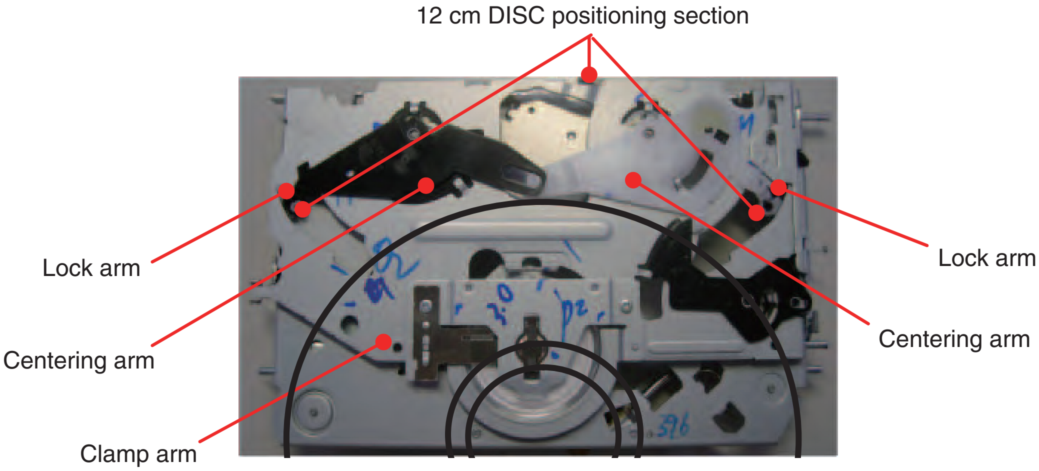


3. In the case of an 8 cm disc, even if the disc is transported, the SW3 OFF and SW4 ON state will not be realized, and the clamping motion will be taken. The microcomputer will judge as an 8 cm disc.

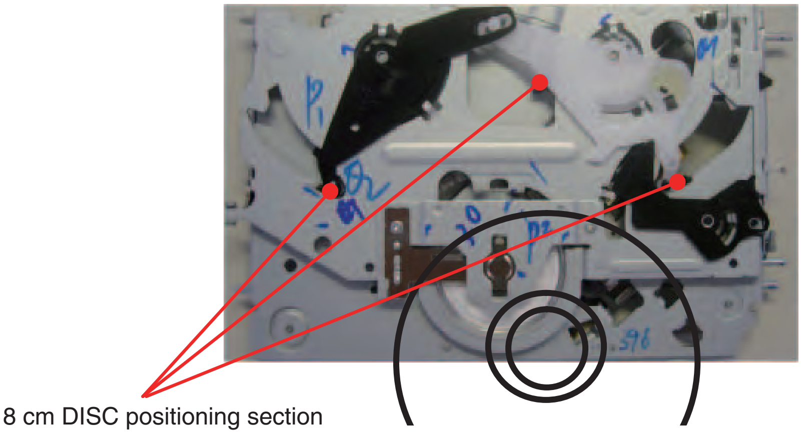


2.2 Disc centering mechanism

1. In the case of a 12 cm disc, the centering arm R・L will open by the disc being transported and both the lock arm R・L being pushed. Furthermore, the disc will be centered by the stopper of either the clamp arm or the centering arm R and stopped, and the clamping motion will be taken.

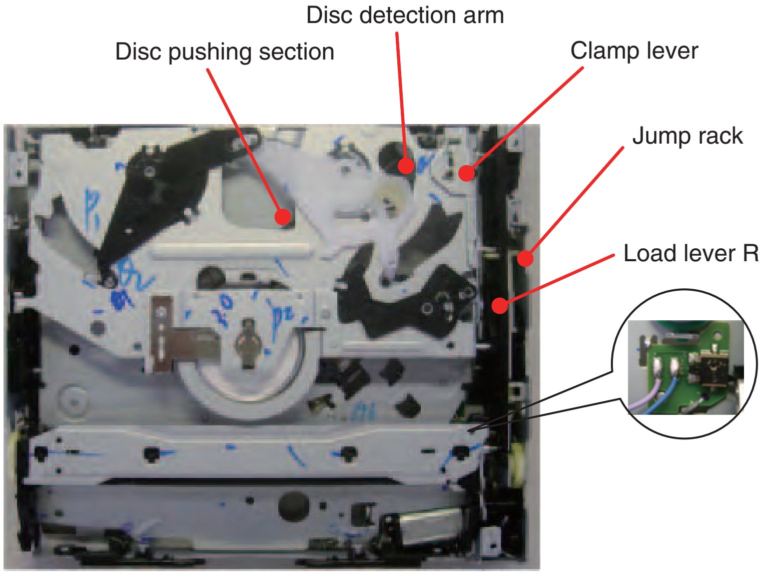

12 cm DISC positioning section
Lock arm
Centering arm
Clamp arm
Lock arm
Centering arm

2. In the case of an 8 cm disc, if a disc is inserted being shifted to the left or the right, the disc will first hit the lock arm R or L.
   As the lock arm R and L are coupled via the centering arm R and L and the lock will not be released unless both are pushed, the disc will be restricted by the fixed lock arm and centered.
   The disc pushes out the detection arm while being centered, the disc stops at a position where the motion of the detection arm is completed, and the clamping motion will be taken.

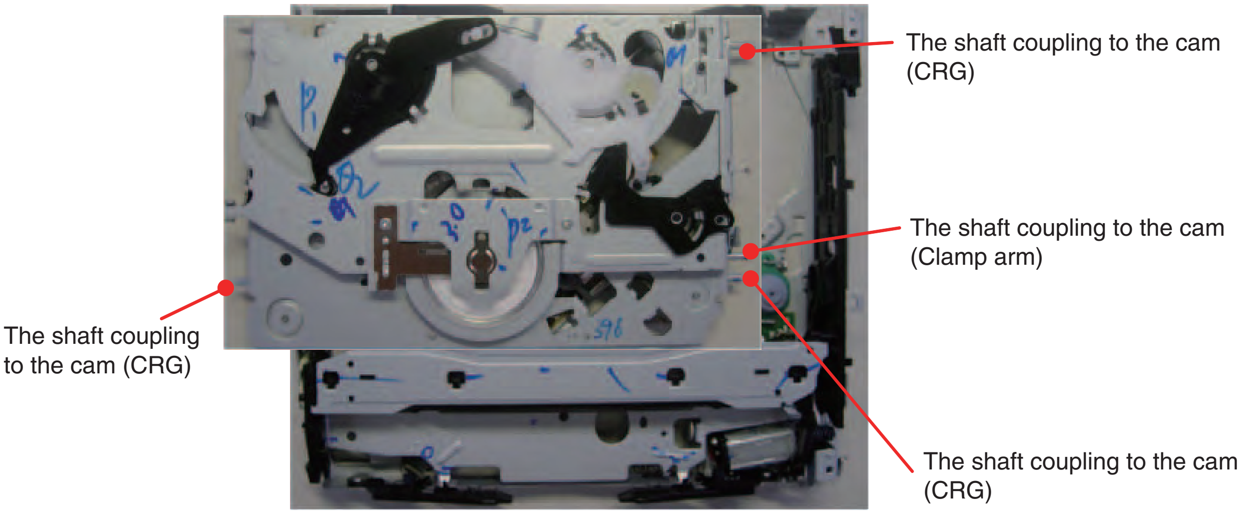

8 cm DISC positioning section

2.3 Clamping operation

1. When a disc is loaded, the clamp lever will be driven by the disc detection arm being pushed by an 8 cm or a 12 cm disc. By engagement of the jump rack and the lever driving gear, the disc clamping motion will start.


Disc detection arm
Disc pushing section
Clamp lever
Jump rack
Load lever R

2. When the load lever R pushed by the jump rack moves to the front side of the mechanism, the roller shaft restricted by the cam of the load lever R will move downward.
   And the roller shaft is also restricted by the cam of the cam ring.
   The power of the roller shaft is transferred to the load lever L via the cam ring, and the load lever L will move to the front side of the mechanism.
   The coupling of the load cam attached to each load lever, three shafts of the CRG chassis unit and the shaft of the clamp arm will be released, and the clamping motion will be completed at a position where the switch pushing section of the load lever R turns the clamp SW to ON.


The shaft coupling to the cam (CRG)
The shaft coupling to the cam (Clamp arm)
The shaft coupling to the cam (CRG)
The shaft coupling to the cam (CRG)

2.4 Ejection operation

1. The loading motor reverse rotates, and the ejection motion will start.
2. In the case of a 12 cm disc, the ejection will be completed by OFF→ON→OFF of SW4.
3. In the case of an 8 cm disc, the ejection will be completed when both SW3 and SW6 become ON after either SW3 or SW6 is ON→OFF.

3. DISASSEMBLY

● How to hold the mechanism section (Fig 1)

1. Hold the main frame and the top frame.
2. As the mechanical strength of the front part of the top frame is not strong, do not hold this part.
3. Do not touch the switches provided on the top face of the mechanism section.
4. Be careful not to pull the flexible PCB on the side face.

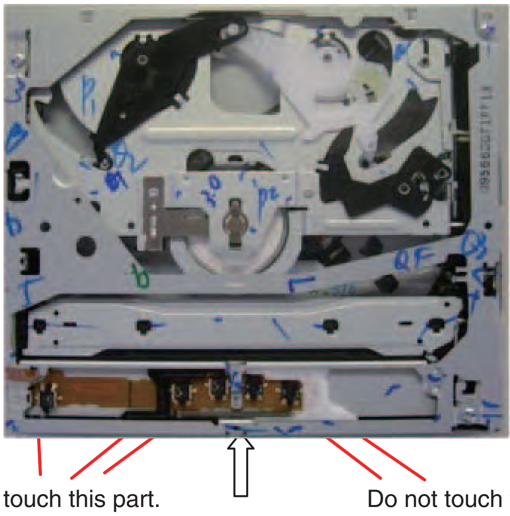
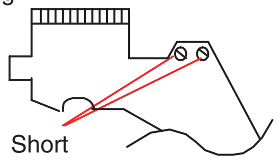

Do not touch this part.
Do not touch this part.
Do not touch this part.

Fig 1

● How to remove the module PCB (Fig 2, Fig 3)

1. Put the mechanism section in locked state (disc load standby position).
2. Hold the mechanism module with its top face down.
3. Make the lands at 2 locations on the pick up flexible PCB short.
4. Disconnect the connectors of the pick up flexible PCB and the SPDL flexible PCB.
   (Be sure to disconnect the connectors as the flexible PCB will be damaged if the PCB is removed without removing the flexible PCB.)
5. Remove the solder joint of the lead wire of the load motor and the clamp SW.
6. Remove the two screws, and then remove the module PCB.
   (Lift up point A slightly and remove it toward B direction. Be careful as the point C is connected with a flexible PCB.)
7. Disconnect the connector of the 8-12 detection flexible PCB from the PCB.

Fig 2



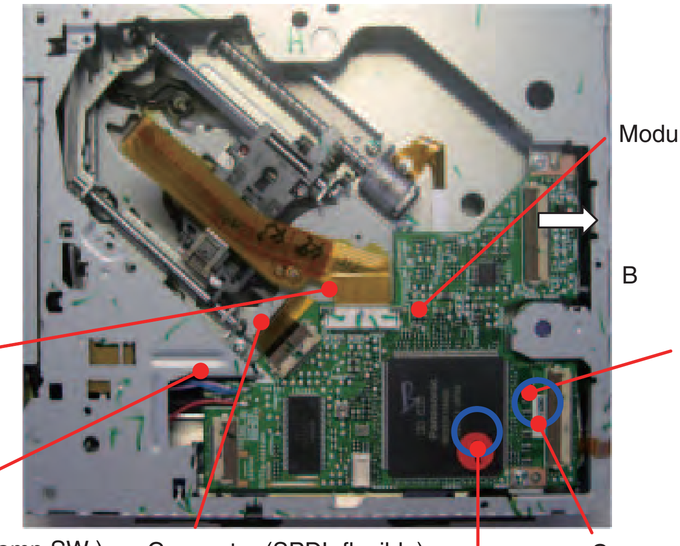

Module PCB
B
Connector
(pick up flexible)
Connector
(8-12 detection flexible)
Solder land
(load motor, lead wire of the clamp SW.)
Connector (SPDL flexible)
A
C

Fig 3

● How to remove the spindle motor (Fig 4)

1. Remove the module PCB according to the instructions in “How to remove the module PCB”.
2. Remove the flexible PCB of the CRG motor from the connector of the spindle motor.
3. Remove the three motor mounting screws. When mounting or removing the motor, be careful not to deform the CRG chassis.

● How to remove the CRG motor assy (Fig 4)

1. Remove the module PCB according to the instructions in “How to remove the module PCB”.
2. Remove the Mylar tape.
3. Remove the flexible PCB of the CRG motor from the connector of the spindle motor.
4. Remove the two screws, and then remove the CRG motor assy.

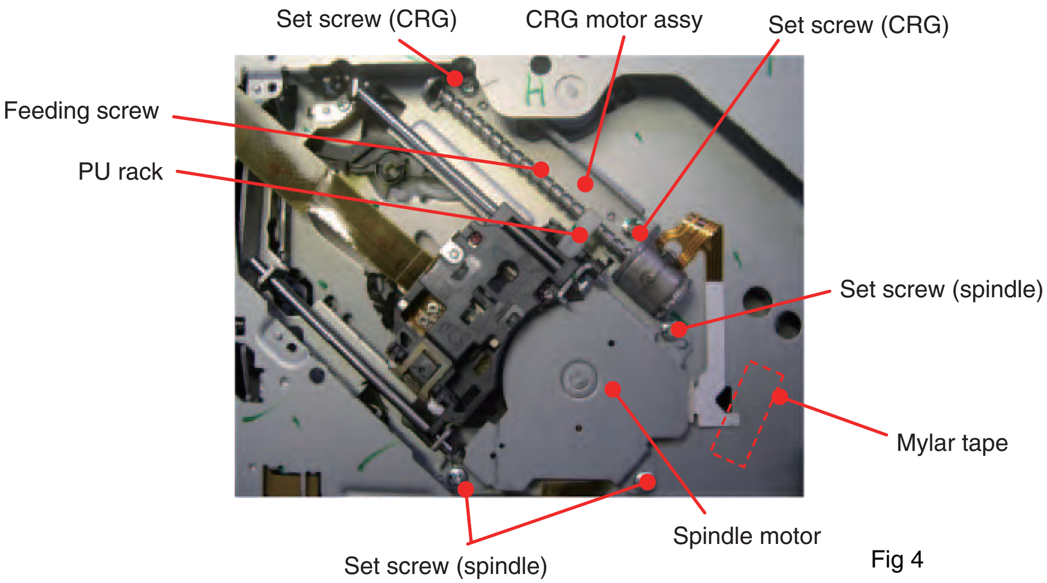

Set screw (CRG)
CRG motor assy
Set screw (CRG)
Feeding screw
PU rack
Set screw (spindle)
Mylar tape
Spindle motor
Set screw (spindle)

Fig 4

● How to remove the upper frame assy (Fig 5)

1. Remove the module PCB according to the instructions in “How to remove the module PCB”.
2. Remove the vibration-proof spring (right front).
3. Remove the four screws, and then remove the upper frame assy.

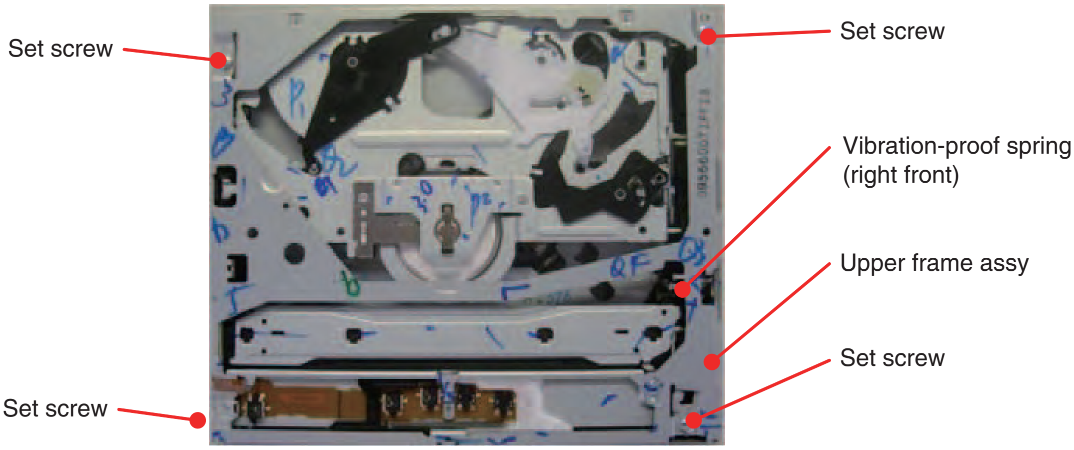

Set screw
Set screw
Vibration-proof spring
(right front)
Upper frame assy
Set screw
Set screw

Fig 5

● How to remove the PU unit (Fig 6)

1. Remove the module PCB according to the instructions in “How to remove the module PCB”.
2. Hang the main shaft holding spring to the CRG chassis temporary hanger.
3. Remove the CRG motor assy according to the instructions in “How to remove the CRG motor assy”.
4. Remove the holding plate spring of the main shaft.
5. While lifting up the tip of the pick up rack, slide the main shaft, and remove the PU unit.

(Note) When mounting the PU unit again, make sure to do the adjustments of the devices mounted thereon according to the descriptions of the service manual. Furthermore, make sure to hang the main shaft holding spring permanently.

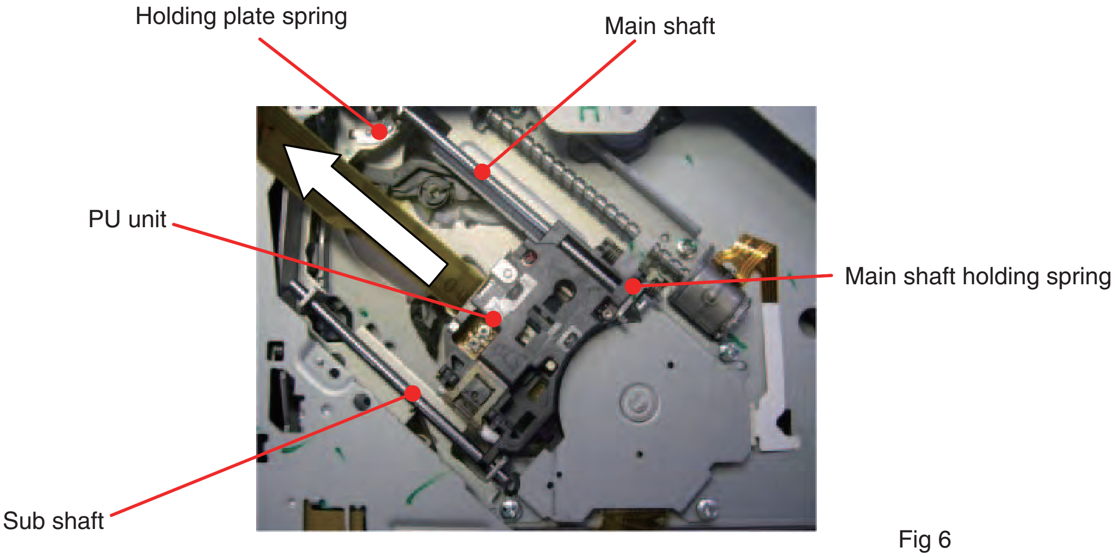
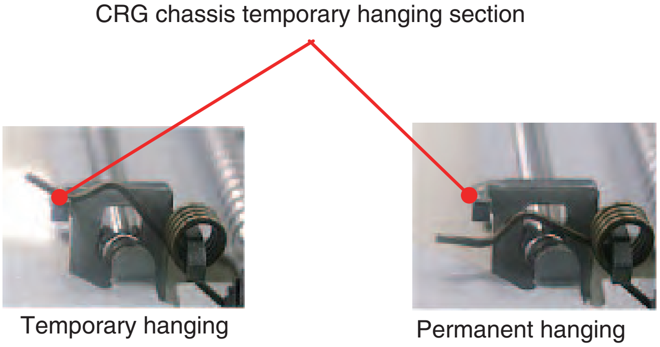

Holding plate spring
Main shaft
PU unit
Main shaft holding spring
Sub shaft

Fig 6


CRG chassis temporary hanging section

Temporary hanging

Permanent hanging

● How to remove the load gear assy (Fig 7)

1. Remove the module PCB according to the instructions in “How to remove the module PCB”.
2. Remove the upper frame assy according to the instructions in “How to remove the upper frame assy”.
3. Remove the two screws, and then remove the load gear assy.
4. Remove the jump rack and the rack attached spring.

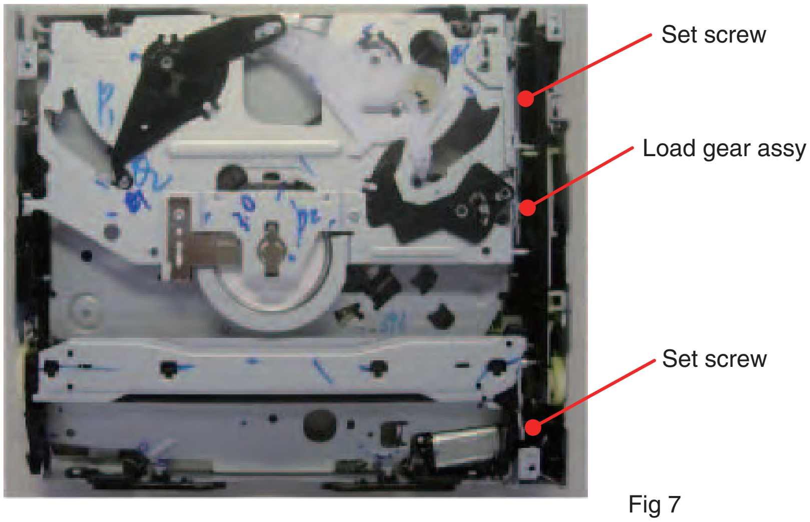


Fig 7

● How to make the empty clamp state (motor driven empty clamp) (Fig 8)

1. While driving the motor in the clamping direction, pull the clamp lever toward you.
2. Even if the clamp lever has pushed the jump rack putting it in the clamped state, continue pulling the clamp lever toward you lightly until it is stopped. It should be noted that the ejection will not work if the bar ring of the clamp lever is positioned at the center of the hook shape. (Fig 9)
3. When the clamping motion is finished, stop the motion before the convex shape of the jump rack touches the load lever R. (Fig 10)

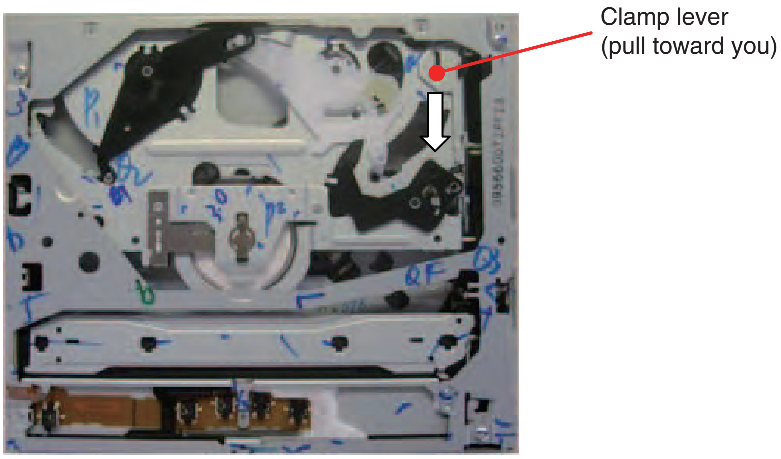


Fig 8

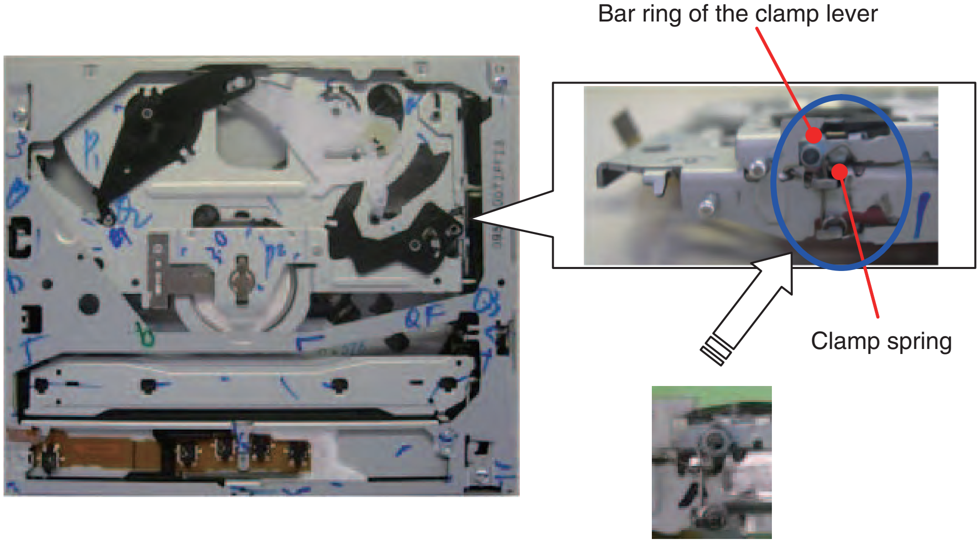
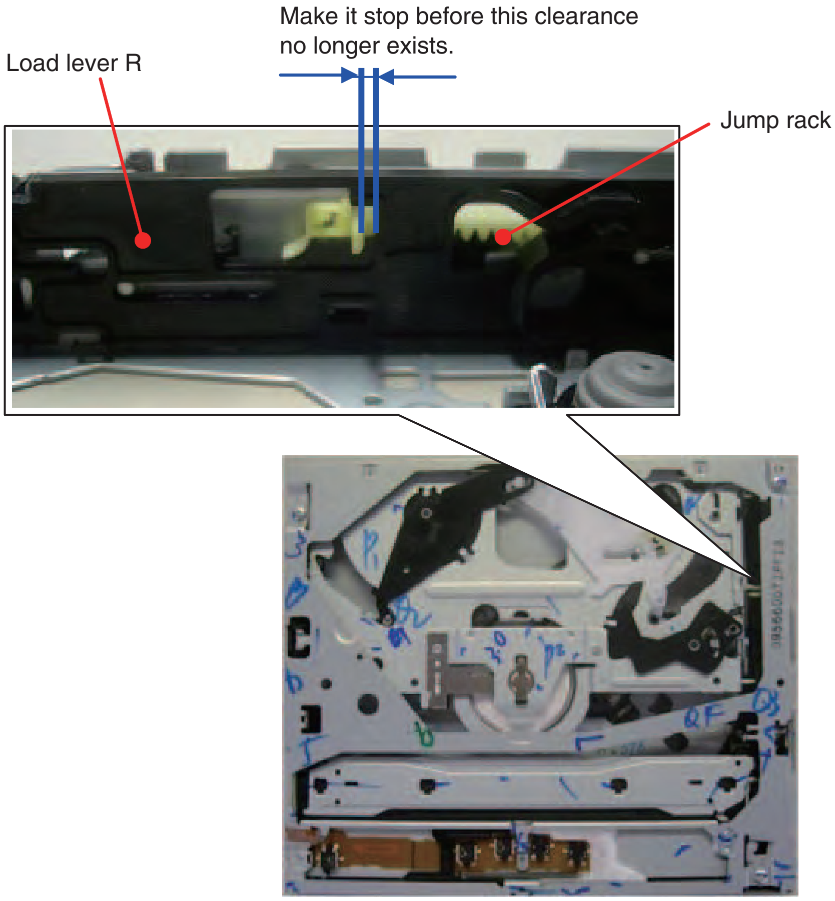

Bar ring of the clamp lever
Clamp spring

Fig 9

Make sure that the bar ring of the clamp lever does not get inside the clamp spring.


Load lever R
Jump rack

Make it stop before this clearance no longer exists.

Fig 10

● How to make the empty clamp state (manual empty clamp) (Fig 11)

1. Remove the module PCB according to the instructions in “How to remove the module PCB”.
2. Remove the upper frame assy according to the instructions in “How to remove the upper frame assy”.
3. Remove the load gear assy according to the description in “How to remove the load gear assy”.
4. While pulling the clamp lever toward you, pull the slip stopper of the load lever R, and make it clamp.

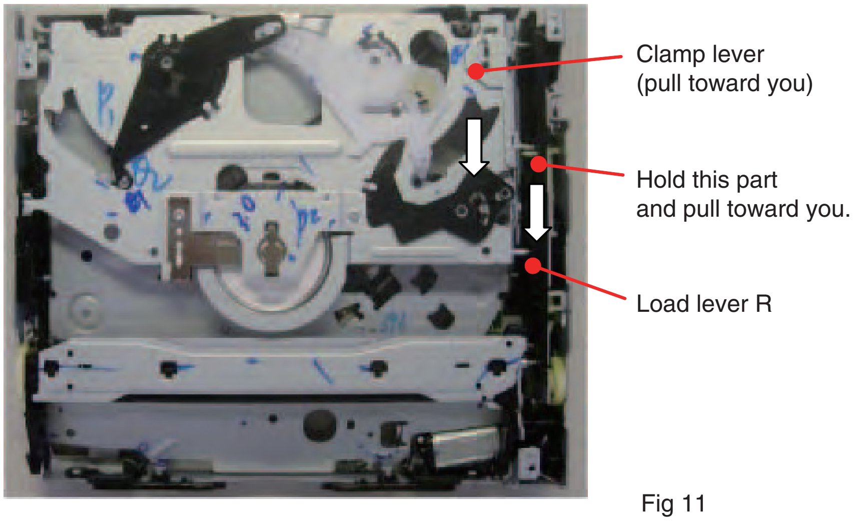

Clamp lever
(pull toward you)
Hold this part
and pull toward you.
Load lever R

Fig 11

● How to remove the load motor assy (Fig 12)

1. Remove the module PCB according to the instructions in “How to remove the module PCB”.
2. Remove the upper frame assy according to the instructions in “How to remove the upper frame assy”.
3. Remove the load gear assy according to the description in “How to remove the load gear assy”.
4. Make the empty clamp state according to the description in “How to make the empty clamp state (manual empty clamp)”.
5. Remove the screw and then pull out the load motor assy from the side.

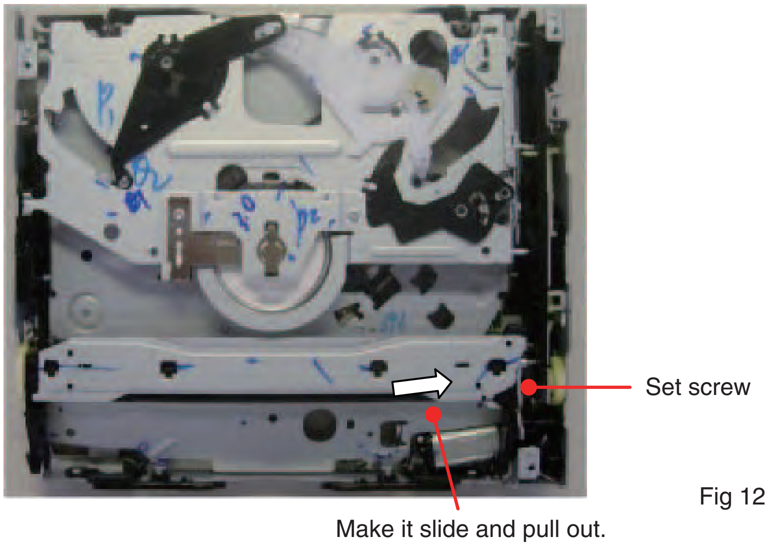

Set screw
Make it slide and pull out.

Fig 12

● How to remove the CRG assy (Fig 13)

1. Make the empty clamp state according to the description in “How to make the empty clamp state (motor driven empty clamp)”.
2. Remove the module PCB according to the instructions in “How to remove the module PCB”.
3. Remove the upper frame assy according to the instructions in “How to remove the upper frame assy”.
4. Remove the three vibration-proof springs.
5. Remove the CRG assy by lifting it up until the shaft slips out of the damper.

● How to remove the disc guide assy (Fig 13)

1. Make the empty clamp state according to the description in “How to make the empty clamp state (motor driven empty clamp)”.
2. Remove the module PCB according to the instructions in “How to remove the module PCB”.
3. Remove the upper frame ASSY according to the instructions in “How to remove the upper frame assy”.
4. Remove the two screws, and then remove the disc guide by lifting it up and placing it at 45° position and further sliding it to the left.

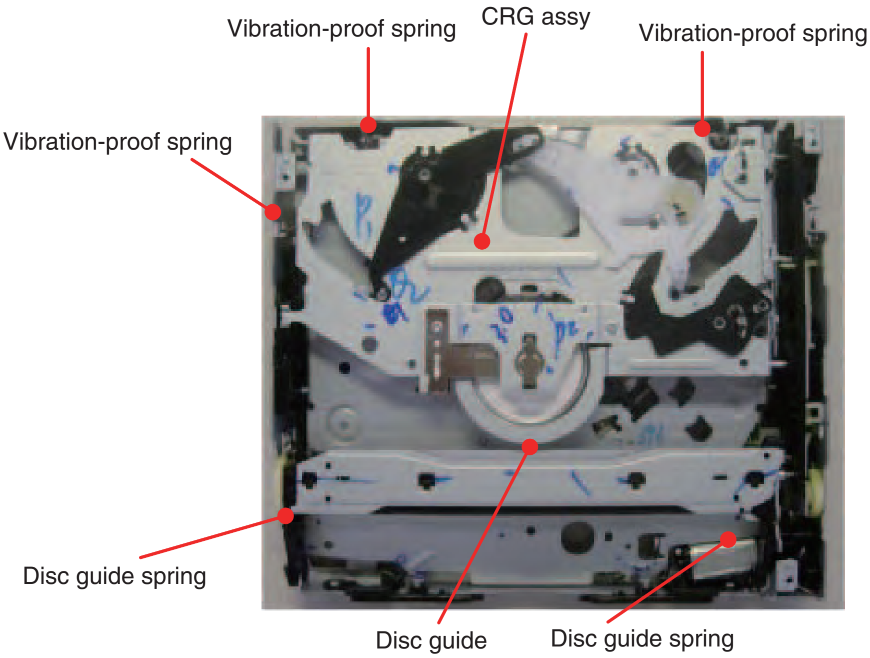

Vibration-proof spring
CRG assy
Vibration-proof spring
Vibration-proof spring
Disc guide spring
Disc guide
Disc guide spring

Fig 13

● How to remove the roller assy (Fig 14)

1. Remove the module PCB according to the instructions in “How to remove the module PCB”.
2. Remove the upper frame assy according to the instructions in “How to remove the upper frame assy”.
3. Remove the extension spring.
4. Remove the load gear assy according to the description in “How to remove the load gear assy”.
5. Make the empty clamp state according to the description in “How to make the empty clamp state (manual empty clamp)”.
6. Remove the disc guide assy according to the description in “How to remove the disc guide assy”.
7. Remove the CRG assy according to the description 4 and 5 in “How to remove the CRG assy”.
8. Push the slip stopper of load lever R toward the back, and move it until the end.
9. Remove the load motor assy according to the description in “How to remove the load motor assy”.
10. Remove the roller arm spring R • L.
    As for the roller arm spring R, remove only the tip hanging on the load lever R.
11. Remove the extension spring, and then remove the roller assy by lifting it up to the highest position and sliding it toward the right.

(Note) Be careful not to deform the shutter when removing the roller assy.

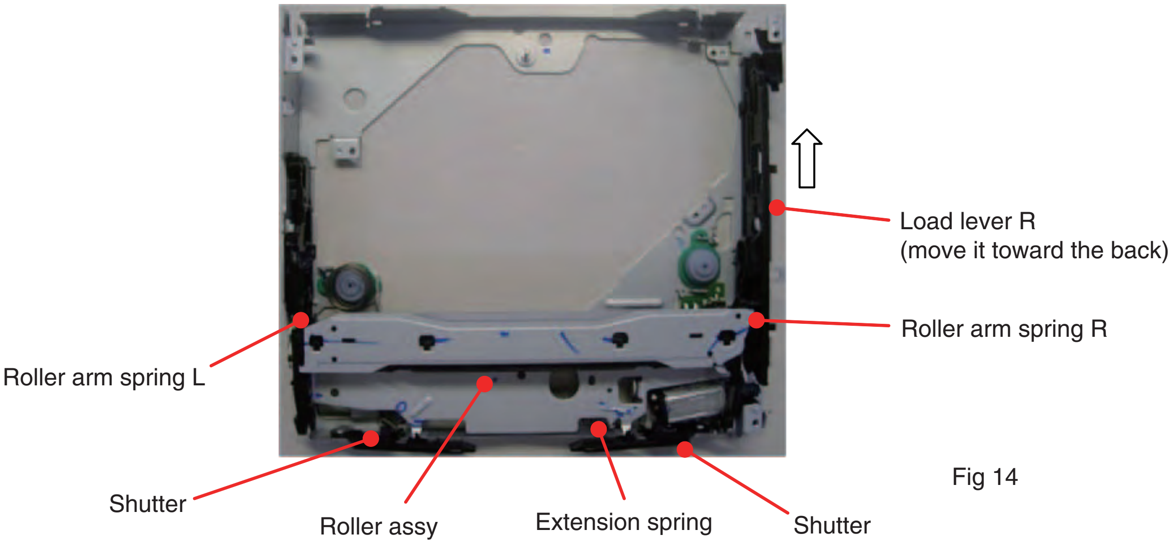


Fig 14

● How to remove the damper (Fig 15)

1. Make the empty clamp state according to the description in “How to make the empty clamp state (manual empty clamp)”.
2. Remove the module PCB according to the instructions in “How to remove the module PCB”.
3. Remove the upper frame assy according to the instructions in “How to remove the upper frame assy”.
4. Remove the three vibration-proof springs.
5. Remove the CRG assy according to the description 4 and 5 in “How to remove the CRG assy”.

6.1 Release the clinch by holding the A section of the damper attached to the main frame using a pair of pliers and lifting it up toward B direction.
(As there will be a gap made at section C, remove the damper.)

6.2 Insert a screwdriver into section D, release the clinch by lifting up a metal plate on the other side, and remove the damper.

7.1 Remove the CRG motor assy according to the description 3 and 4 in “How to remove the CRG motor assy”.

7.2 Remove the damper.

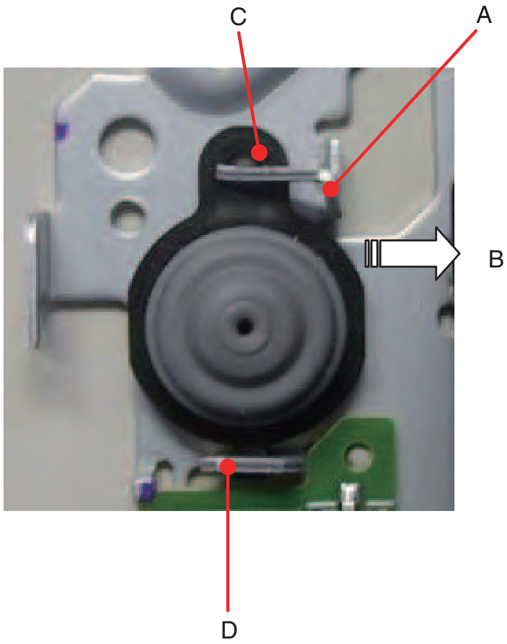


Fig 15